Macroeconomic Determinants of Stock Market Development in Nigeria: (1981-2017)

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Abstract: For the stock market to contribute effectively and efficiently in its role of capital formation, the macroeconomic environment in which it operates must be conducive and growth supportive. Hence, this study examine macroeconomic determinant of stock market development in Nigeria for the period of 1981 to 2017. The study employed the ARDL bound testing technique to investigate the long run and short run relationship between the dependent variable (stock market development) and independent variables (GDP, banking sector development, stock market liquidity, foreign direct investment, inflation rate and savings rate). The result of the study showed that in both the short run and long run, key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are banking sector development, stock market liquidity, foreign direct investment and to an extent the income level (GDP) while inflation rate which measures macroeconomic stability, and savings rate do not significantly explain stock market development. This study therefore recommended amongst others that policymakers should ensure economic stability in order ensure the development of stock market.

Keywords: Macroeconomic; Stock Market Development; Nigeria; ARDL Approach

JEL Classification: B22; F62; G1

1. Introduction

Stock markets have been recognized as a conduit for investments in an economy due to the role they perform in capital formation which is a prerequisite for economic growth and development. The stock market serves as a platform for raising and allocation of funds needed for investment, thereby creating opportunities for investors. According to Oseni and Nwosa (2011), it is where the elements of development of an economy interact with each other and an integral part of every economy (Saleem & Alifiah, 2017). Stock market is a mirror and a barometer of economic performance (Singh, 2010; Dev & Shakeel, 2013). Studies have shown that the stability of the stock market is necessary for economic growth of both developing and developed countries. Yet, the market has been known to be sensitive to the condition of the economy within which it operates. Therefore, macroeconomic conditions are expected to affect the development of the stock market (Al-Majali & Al-Assaf, 2014).

Theoretical approach supports the role of domestic economic fundamentals in determining the performance and growth of stock market (Sharma & Mahendru, 2010). It is well documented in research that stock prices react to information on corporate control, regulatory policies and macroeconomic conditions (Cutler, Poterba & Summers, 1988). Traditional valuation of stock is based on its present value which is derived from the discounted expected future cash flow streams. The expected future cash flows are however, sensitive and subjected to changes in macroeconomic conditions (Mehr-un-Nisa & Nishat, 2012). The linkage between macroeconomic variables and stock prices is provided by the arbitrage pricing theory developed by Ross (1976). Fundamental macroeconomic variables such as gross domestic product, interest rates, inflation rates, exchange rates, money supply, and external debts have been documented in empirical studies to affect stock market prices (Laichena & Obwogi, 2015). These economic indicators either boost or reduce the confidence of local and foreign investors in the stock market.

Stock markets of emerging economies over the past few decades have witnessed remarkable growth as indicated by the value and volume of trade in the markets along with the level of capital inflows from developed markets, thereby providing numerous opportunities for investments (Beckmann, Berger &

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Czudaj, 2015; Raza, Shahzad, Tiwari & Shahbaz, 2016). The development of the stock market is vital as it provides more opportunities for greater mobilization of funds and better efficiency in resource allocation (Inanga & Emenuga, 1997 as cited in Okoro, 2017). Thus, in order to ensure stability and development in the stock market, emerging economies like Nigeria have over the years witnessed several reforms. Nevertheless, investment returns in the stock market of developing economies continue to be more reactive to changes in economic fundamentals due to their fragile and volatile nature (Ahmed, 2008; Kirui, Wawire & Onono, 2014). This makes them even more unpredictable and unstable unlike the stock markets of developed economies, which are known to be more stable.

In recent years, macroeconomic variables performance in Nigeria has been poor. Presently, the situation has been exacerbated by the recent decline in global oil price due to the oil-dependent nature of the Nigerian economy. Key indicators such as the GDP experienced negative growth rate consistently over the quarters of 2016, thereby, increasing inflation rate to double digit and pushing the depreciation of the exchange rate to a new height. All these could potentially limit the development of the stock markets as well as impede on its role in contributing to the development of the economy. Developing countries like Nigeria are still yet to fully exploit the potential benefits of the stock market due to some problems which are yet to be fully identified. This study attempts to identify these problems from the macroeconomic perspective by addressing questions such as: what are the macroeconomic determinants of stock market development and to what extent have macroeconomic variables affected the development of the stock market in Nigeria? While there are numerous empirical studies on the impact of macroeconomic variables on stock market prices and returns in Nigeria, studies on macroeconomic variables as determinants of stock market development are scarce. Conflicting results from existing empirical studies also necessitate further investigation. The result of this study would not only provide information to investors on factors affecting their investment, it would as well help policy makers in formulating policies which could help develop the stock market.

As at the first quarter of 2018, the NSE is the third largest exchange in Africa. It experienced an increase in Market Capitalization from N16.88 trillion ($90.68 billion) in the fourth quarter of 2014 to N24.87 trillion ($81.36 billion) and the largest exchange in West Africa (NSE fact sheet, 2018, 2014). There are 171 listed equities, 91 listed bonds and 9 listed ETFs with 166 listed companies from 11 industries. As regards the movement of the NSE ASI index, there was a massive increase from 1998 to 2008 with an upsurge from 5,672.70 points to 55,949 points. However, the financial crisis of 2008 led to a downward trend in the ASI with more than 40% drop from 2008 to 2010. It then recovered and increased in 2014 to 34,657.20 points, and again suffered a drop in 2016 to 26,874.60 points which can be attributed to recession. It is the interest of this study to then examine the macroeconomic factors responsible for the developments in the NSE development.

Figure 1: ASI INDEX
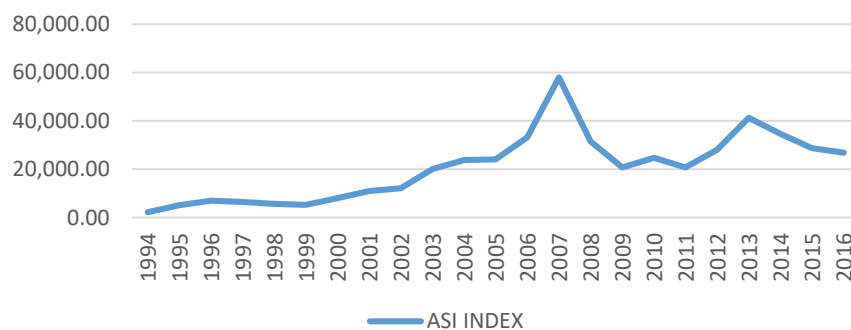
Source: CBN Statistical Bulletin 2016, NSE Fact Sheet, 2016

2. Literature Review

This section contains a review of prior studies on macroeconomic determinants of stock market development from developed and developing economies. One of the earliest studies on the subject matter is by Garcia and Liu (1999) who studied fifteen industrial and developing countries and concluded that real income, saving rate, financial intermediary development and stock market liquidity are important determinants of stock market development. Hsing (2014) in a study in Estonia reported that stock market index is positively affected by the debt/GDP ratio, real GDP and the German stock market index and is negatively associated with the exchange rate, the domestic interest rate, the expected inflation rate, and the euro area government bond yield. Al-Mamun (2013) in global growth generator (3G) countries applied panel ARDL model and showed evidence supporting macroeconomic variables as significant determinants of the stock market development. In Pakistan, Muhammad, Sonia and Tayyaba (2017) found that there is strong correlation between market capitalization, foreign direct investment, money supply and oil prices. Sukruoglu and Nalin (2014) in a similar study suggested that income, monetization ratio, liquidity ratio, saving rate and inflation affect stock market development while monetization ratio and inflation have negative effects, income, liquidity ratio and saving rate exhibited a positive effect on stock market development.

In a recent study, Ho and Odhiambo (2018) analyzed the macroeconomic drivers of stock market development in the Philippines. Using the ARDL bounds testing procedure, the empirical results revealed that trade openness has a negative impact on Philippine stock market development in the long run, while banking sector development and the exchange rate both have positive impacts on the development of the Philippine stock market in the short run. Zhou, Zhao, Belinga and Gahe (2015) applied the Calderon-Rosell model to investigate the macroeconomic factors affecting the stock market development in Cameroon. The result of the study indicated that stock market liquidity and financial openness are significant determinants of stock market development. However, contrary to the result of Ho and Odhiambo (2018), banking sector development did not positively and significantly determine stock market development of Cameroon under the period reviewed. Su, Bui and Nguyen (2016) employed a panel data of 36 developing countries for the period 2003 to 2014 and applied two-way General Method of Moments to explore the determinants of stock market development. The findings showed that economic growth, domestic credit and stock market liquidity are positive determinants of stock market development while money supply is a negative determinant.

Most of the studies (Al-Mamun (2013); Muhammad et al (2017); Sukruoglu and Nalin (2014); Dev and Shakeel (2013); Ho and Odhiambo (2018); Su et al (2016); Kemboi and Tarus (2012); Yartey (2008); Shrestha and Subedi (2014); Matadeen (2017); Bayar (2016)) reviewed agreed that foreign direct investment, economic growth, stock market liquidity, trade openness, inflation, savings rate and banking sector development are significant determinants of stock market development, while studies such as Owiredu et al (2016), Acquah-Sam (2016), Zhou et al (2015) and Shadnan and Khan (2017) showed mixed results. Empirical studies in Nigeria regarding the subject matter is scarce as earlier stated. Existing studies have focused on the relationship between stock market prices and macroeconomic variables (Asaolu & Ogunmuyiwa, 2010; Oseni & Nwosa, 2011; Malaolu et al., 2013; Onakoya, 2013; Abdulkarim, 2014; Inyiama & Nwoha, 2014). A study by Ayunku and Etale (2015) only assessed the impact of stock market development on economic growth and failed to examine the relationship in the opposite direction. Okoro (2017) on the other hand, failed to proxy stock market development by market capitalization which according to Levine and Zervos (1996) and Dermirguc-Kunt and Levine (1996) (as cited by Garcia and Liu, 1999) is less arbitrary than other individual measures and indexes of stock market development.

3. Research Method

3.1. Data

Macroeconomic variables such as real gross domestic product, banking sector development, stock market liquidity, foreign direct investment, inflation rate and savings rate are selected as determinants of stock market development. Stock market development is proxy by market capitalization which is a better proxy for general development in the market. The Calderon-Rossell Model (1991) provided a model linking economic growth and stock market liquidity as the main determinants of stock market development. However, in recent years, the model has been modified to incorporate other stock market determinants (Yartey, 2008; Kemboi and Tarus, 2012; Zhou et al 2015; Acquah-Sam, 2016). According to the Calderon-Rossell (1991) model, market capitalization is defined below;

$$Y = PV \qquad (1)$$

Where;

Y is market capitalization in local currency, P is the number of listed companies in the stock market and V is the local currency average price of listed companies

The model was formally presented as follows;

$$Y = PV = Y(G,T) \qquad (2)$$
$$V = V[G,P], P = P(T,V) \qquad (3)$$

The exogenous variable G represents per capita GNP in local currency and variable T represents the turnover ratio (which is equal to the value of total shares traded divided by market capitalization and it is used for measuring stock market liquidity). The endogenous variables are V and P

The structural equations are then expressed in the following reduced behavioral model:

$$Log\, Y = \theta_1 Log G + \theta_2 Log T \qquad (4)$$

The component of the reduced form model is expressed as follows:

$$Log\, V = \alpha_1 Log G + \alpha_2 Log T \qquad (5)$$
$$Log\, P = \varpi_1 Log G + \varpi_2 Log T \qquad (6)$$

Equation 4 can be written as:

$$Log\, Y = Log(PV) = \alpha_1 Log G + \alpha_2 Log T + \varpi_1 Log G + \varpi_2 Log T \qquad (7)$$

Factorizing we have:

$$Log Y = (\alpha_1 + \varpi_1) Log G + (\alpha_2 + \varpi_2) Log T \qquad (8)$$

Where:

$$\theta_1 = \alpha_1 + \varpi_1 \qquad (9)$$
$$\theta_2 = \alpha_2 + \varpi_2 \qquad (10)$$

Equation 8 shows the impact of economic growth G, and stock market liquidity T on stock market development Y. The model shows that stock market development is the result of the combined effect of economic growth and liquidity on both prices and the number of listings.

3.2. Model Specification

Following Calderon-Rossell model (1991), this study modified the model in order to incorporate more variables as determinants of stock market development. Therefore, the following model is adopted for this study;

$$MRK_t = \beta_0 + \beta_1 GDP_t + \beta_2 BSD_t + \beta_3 SML_t + \beta_4 FDI_t + \beta_5 INF_t + \beta_6 SVR_t \quad (11)$$

Where;

β0 = intercept/constant, β1 – β7 = parameters/coefficients of the explanatory variables, μt = stochastic term

3.3. Estimation Technique

The study collected times series annual data for the period covering 1981 to 2016. The study made use of secondary data sourced from CBN statistical bulletin, journals and articles. In order to investigate the dynamic linkage between macroeconomic variables and stock market development in the Nigeria stock exchange market, this study adopted the autoregressive distributed lag (ARDL) cointegration approach, or bound testing method, that was proposed by Pesaran et al. (2001). ARDL cointegration approach has numerous benefits as relative to other cointegration estimation methods. The flexibility of ARDL model is appealing, as it can be used regardless of whether underling variables are integrated I(0) or I(1), but not I(2). Secondly, unlike other cointegration approaches, the ARDL technique are not sensitive to the size of sample, and is comfortably applied even under a small sample size. Thirdly, ARDL cointegration approach can distinguish explanatory and explained variables, and enables testing the existence of linkage between the underling variables. Furthermore, it has better statistical properties by providing unbiased estimates and valid t-statistics. Various diagnostic tests are carried out in order to generate the Best Linear Unbiased Estimator. These tests include the Augmented Dickey Fuller (ADF) Unit root test which is to test the stationarity of the variables and their order of integration, the Autocorrelation LM test to check for the autocorrelation in the residuals, Heteroscedasticity test and Normality tests.

The ARDL bound testing procedure employs the equation

$$\Delta LMRK_t = \beta_0 + \sum_{i=0}^{n} \beta_1 \Delta \, \mathrm{L} \, MRK_{t-1} + \sum_{i=0}^{n} \beta_2 \Delta \, \mathrm{L} \, GDP_{t-1} + \sum_{i=0}^{n} \beta_3 \Delta \, \mathrm{L} \, BSD_{t-1} + \sum_{i=0}^{n} \beta_4 \Delta \, \mathrm{L} \, SVR_{t-1}$$
$$+ \sum_{i=0}^{n} \beta_5 \Delta \, LINF_{t-1} + \sum_{i=0}^{n} \beta_5 \Delta \, LSML_{t-1} + \sum_{i=0}^{n} \beta_5 \Delta \, LFDI_{t-1} + \alpha_1 LMRK_{t-1}$$
$$+ \alpha_2 LGDP_{t-1} + \alpha_3 LBSD_{t-1} + \alpha_4 LSVR_{t-1} + \alpha_5 LINF_{t-1} + \alpha_5 LSML_{t-1} + \alpha_5 LFDI_{t-1}$$
$$+ \mu_t \quad (4)$$

Where μ, β and α are the white-noise error term, the short run coefficients and the long run coefficients of the model respectively, and Δ is the first difference operator. t denoted time period. The maximum number of lags in the model is chosen using AIC.

4. Empirical Result

4.1. Unit Root Test Result

The Augmented Dickey Fuller (ADF) test presented in table 1 reveal that all variables are stationary at first differences except INF which is stationary at level.

Table 1. Augmented-Dickey-Fuller (ADF) Test

Variables	Augmented Dickey-Fuller test statistic		Order of Integration
	Level	First Difference	
MRK	-1.868031	-6.477611***	1(1)
LogGDP	-0.643910	-3.086936**	1(1)
BSD	-0.252102	-4.886752***	1(1)
SVR	-2.220649	-6.368255***	1(1)
INF	-3.118961**	-3.211953**	1(0)
SML	-2.509132	-5.879620***	1(1)
FDI	0.510290	-5.593981***	1(1)
\Asymptotic critical values*:			
1% level	-3.639407		

5% level	-2.951125
10% level	-2.614300

Note: * implies significant at 10% level, ** implies significant at 5% level and *** implies significant at 1% level

This means that the hypothesis of unit root is not rejected for all variables at the 5% level of significance in level. Hence, stock market development and the five selected macroeconomic variables are integrated of the same 1(1) order except inflation which is 1(0). The result of the ADF test signifies that we can proceed to conducting cointegration test using the ARDL bound testing approach which gives room for linear combination of different order of integration. Therefore, the study then employs the ARDL method of estimation to explore the short run and long-run relationships among the variables.

4.2. ARDL Bound Test

The ARDL cointegration test is employed to investigate the long run relationship among the variables. The model was estimated and the ARDL bounds test was conducted. The results of the ARDL bounds test which is presented in table 3 indicated that F statistics which is 22.25 was higher than upper bound critical values. So we rejected the null hypothesis (there was no cointegration relationship among the variables) and we concluded that there was cointegrating relationship among the variables. Having found that ΔMCR, ΔGDP, ΔBSD, ΔSVR, INF, ΔSML and ΔFDI are co-integrated, the study estimates the model using the ARDL bounds test approach. The first step is to determine the optimal lag length for the model using the Akaike Info criterion (AIC). The optimal lag length selected based on AIC is ARDL (2, 0, 2, 0, 0, 2, 2). The long-run and short-run results of the selected model are reported in Table 3 and 4.

Table 2. Results of ARDL Bounds Test

Null Hypothesis: No long-run relationships exist		
Estimated equation $MRK = f(GDP, BSD, SVR, INF, SML, FDI)$		
F-statistics	22.25181***	
Optimal lag length	(2, 0, 2, 0, 0, 2, 2)	
Significance level	**Critical values**	
	Lower boundI0	**Upper bound I1**
1%	3.15	4.43
5%	2.45	3.61
10%	2.12	3.23

Note: *** denotes significance at 1%

The long run coefficients of the model were estimated after a long run relationship among the variables has been established from the bound test result and the result was presented in Table 3. The long run coefficients showed that the key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are banking sector development, stock market liquidity, foreign direct investment and to an extent the size of the economy in the long run. The results show that coefficient of gross domestic product is positive and significantly related to stock market development at 10% level of significance. This implies that a percentage increase in GDP increases stock market development by 2.72 percentage points. This means that a growing economy increases the demand for equity investment. On the other, banking sector development is negative and significantly associated with stock market development. A percentage increase in banking sector development leads to decrease in stock market development by 0.499 percentage points. However, stock market liquidity has a positive and statistically significant relationship with stock market development. Likewise, foreign direct investment has a positive and significant association with stock market development. Inflation has a negative but insignificant relationship with stock market development. Savings is positive but insignificant in explaining stock market development.

Table 3. Long Run Coefficients of ARDL (2, 0, 2, 0, 0, 2, 2)

Dependent variable: ΔMRK				
Regressor	Coefficient	Standard error	t-Statistic	Probability
$\Delta lnGDP$	2.720737*	1.485389	1.831666	0.0846
ΔBSD	-0.498806***	0.161888	-3.081185	0.0068
ΔSVR	0.030891	0.107147	0.288306	0.7766
INF	-0.003163	0.007338	-0.431020	0.6719
ΔSML	0.352254***	0.041217	8.546331	0.0000
ΔFDI	0.601106***	0.128106	4.692277	0.0002
C	-0.226257	0.270891	-0.835232	0.4152

Source: Author's Compilation via EVIEW 9

Note: * implies significant at 10% level, ** implies significant at 5% level and *** implies significant at 1% level

The result of the short run coefficients of the model was presented in Table 4. The short run coefficients showed the key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are gross domestic product, lagged value of banking sector development, stock market liquidity, lagged value of stock market liquidity and lagged value of foreign direct investment in the short run. Gross domestic product is positively related to stock market development but statistically significant at 10%. The result is in line with the result from the long run coefficients and lends support to the studies of Yartey (2008), Acquah-Sam (2016), and Ho and Odhiambo (2017).

The current value of banking sector development is positive but insignificant in explaining the behavior of stock market development in the short run. However, the lagged value of banking sector development is positive and significantly related to stock market development. This is contrary to the result from the long run result which indicated a negative relationship between banking sector development and stock market development. However, the result is in line with the suggestion by Yartey (2008) that at the early stages of stock market development, the banking sector act as a compliment to the stock market in financing investment. However, as they both develop, the banking sector and the stock market begin to compete with each other and thereby become substitute for financing investment (Al-Mamun, 2013). The long run result however contradict the result of Levine and Zervos (1998), Garcia and Liu (1999), and Ho and Odhiambo (2017).

Domestic savings is positive but insignificantly associated with stock market development both in the short and long run. This is in line with the theoretical expectation that an increase in domestic savings should be associated with the development of the stock market. However, the relationship is insignificant and in line with the result of Yartey (2008) but in contrast with Ita and Duke (2013). Inflation rate which measures macroeconomic instability is negative and insignificantly related to stock market development. This means that an unstable macroeconomic environment erodes the confidence of investors in the stock market. However, it does not significantly determine the development of the stock market. This implies that the stock market anticipate the effect of macroeconomic instability. This is also the case in the long run result. This support the result of Garcia and Liu (1999), Ita and Duke (2013) and Ho and Odhiambo (2017) but in contrast with Yartey (2008).

Both the coefficient of the current and lagged values of stock market liquidity are positively and negatively related to stock market development respectively. Both relationships are statistically significant. This shows that stock market liquidity is positively and significantly related to stock market development both in the short and long run. This result is consistent with earlier studies and therefore suggests that liquid market provides investors with the opportunity to access their investment with ease, thereby increasing the confidence of the investors in the market (Yartey, 2008; Kemboi & Tarus, 2012)

For the current value of foreign direct investment, the coefficient is positive but insignificantly related to stock market development. However, the lagged value of foreign direct investment is negative and

significant in explaining stock market development in the short run. In addition, the results show that the coefficient the error correction term which measures the speed of adjustment to equilibrium is negative and statistically significant as expected. This implies that, when the variables drift apart from equilibrium level by one percent in the short run, they correct by 2.663 per cent towards the equilibrium level.

Table 4. Short Run Coefficients of ARDL (2, 0, 2, 0, 0, 2, 2)

Dependent variable: ΔMRK				
Regressor	Coefficient	Standard error	t-Statistic	Probability
$\Delta MRK(-1)$	0.748867***	0.195314	3.834171	0.0013
$\Delta lnGDP$	7.246002*	4.012149	1.806015	0.0887
ΔBSD	0.091190	0.222590	0.409675	0.6872
$\Delta BSD(-1)$	0.560058**	0.231239	2.421989	0.0269
ΔSVR	0.082271	0.2898972	0.283818	0.7800
ΔINF	-0.008423	0.019539	-0.431112	0.6718
ΔSML	0.297318***	0.067529	4.402792	0.0004
$\Delta SML(-1)$	-0.217860***	0.060412	-3.606271	0.0022
ΔFDI	0.198279	0.159830	1.240564	0.2316
$\Delta FDI(-1)$	-1.159968***	0.154859	-7.490499	0.0000
ECM	-2.663250***	0.286879	-9.283541	0.0000

Source: Author's Compilation via EVIEW 9

Note: * implies significant at 10% level, ** implies significant at 5% level and *** implies significant at 1% level

Overall, the regression for the underlying ARDL model fits well, as indicated by the F-stat and adjusted R-squared of 95 per cent. On the diagnostic tests, the result displayed in Table 5 shows that the model passes all the diagnostic tests performed for serial correlation, functional form, normality and heteroscedasticity.

Table 5. Result of Diagnostic Tests

Test	Statistics	P-value
Serial Correlation: CHSQ(2)	0.8925	0.4303
Heteroscedasticity	1.0779	0.4359
F-statisitics	47.3248	0.0000
R-squared	0.9750	
Adjusted R-squared	0/9544	

Source: Author's Compilation via EVIEW 9

Conclusion

The stock market serves as a platform for raising and allocation of funds needed for investment, thereby creating opportunities for investors. Studies have shown that the stability of the stock market is necessary for economic growth of both developed and developing countries. However, the stock market has been known to be sensitive to economic conditions within which it operate. Therefore, macroeconomic conditions are expected to affect the development of the stock market. This paper examines macroeconomic determinants of stock market development for the period 1981 to 2016 in Nigeria. Using the autoregressive distributed lag (ARDL) approach, the short run and long run relationships between stock market development (market capitalization/GDP) and the selected macroeconomic variables which are economic growth (GDP), banking sector development (credit to private sector/GDP), savings rate (gross domestic savings/GDP), inflation rate, stock market liquidity (value of listed shares/GDP) and foreign direct investment (FDI/GDP) was analysed. The result of the study found out that in both the short run and long run, key macroeconomic determinants of stock market development in the context of the Nigerian Stock Exchange Market are banking sector development, stock market liquidity, foreign direct investment and to an extent the income level (GDP). While inflation rate which measures macroeconomic stability, and savings rate do not significantly explain stock market development. Overall, consistent with previous studies by Garcia and Liu (1999), Yartey (2008),Ita and Duke (2013) and Ho and Odhiambo (2017), the study was able to conclude that macroeconomic variables are positive and significant determinants of the stock market development in Nigeria except for inflation rate. The findings of the study suggest that the

banking sector and the stock market complement each other in the short run but act as substitutes in the long run for investment financing. In addition, macroeconomic stability measured by inflation rate is a weak predictor of stock market development in both the short and long run. However, from the result of the study, it also shows that monetary policies by the policy makers have not been able to promote and influence the use of equity financing effectively and efficiently. This can be seen from the result of the savings rate and macroeconomic stability measure which are not a significant determinant of the stock market development and income level which shows a weak significant relationship with stock market development.

Based on the empirical findings, policy makers should endeavor to provide policy framework that will promote the use of equity financing both in the short run and long run, as the role of the stock market in the development of the economy cannot be overemphasized. Furthermore, competitive incentive should be promoted in order to attract international investors to participate more in the stock market. Finally, policymakers of the country should strive to sustain the stability of the economy in order to promote the growth of stock market development in the short run and long run. This research paper examine macroeconomic determinant of stock market in Nigeria using annual data for the period 1981 to 2016. Further empirical analysis can be carried out on quarterly data and the impact of both macroeconomic and institutional factors on stock market development should be investigated as studies in this area in Nigeria are very few.

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Cape Town: Exploring the Effect of Cultural Values on Entrepreneurial Self-Efficacy among University Students

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Abstract: Various studies suggest that research on entrepreneurship places a greater emphasis on the role of culture, as it affects all aspects of human being. Cultural values are perceived as a shared interpretation of bahaviour as well as actual differences in behaviours, while entrepreneurial self-efficacy (ESE) is best seen as a multidimensional construct made of individuals' beliefs about their abilities and capabilities for tackling the challenges and nurture entrepreneurial intentions towards starting a new business. This study discussed both concepts of cultural values and self-efficacy with an intention to determine whether the former has an impact on the later in the Cape Town environment. The insufficiency of references in entrepreneurial undertakings in South Africa was the main reason to conduct the current study. A deductive approach was adopted and a purposive sample of 274 entrepreneurship students from four universities in Cape Town was analysed using bivariate and multivariate tests of statistical significance. Cronbach's Alpha was used to measure the reliability of the research instrument. Unlike religion, other variables of culture – language and customs & traditions – were found to have impact on self-efficacy. Considering the unit of analysis of the study, as well as the role of self-efficacy, University management should think about designing courses and modules that enhance self-efficacy. The findings reveal what culture can do for entrepreneurship, but contests the view that all its variables support self-efficacy.

Keywords: cultural values; entrepreneurial self-efficacy; university students; Cape Town

JEL Classification: L26

1. Introduction

From a broader perspective, insufficiencies in self-beliefs (in this article, both concepts of self-efficacy and self-belief are used interchangeably) affect negatively the entrepreneurial activity in South Africa (Urban, 2006). It is therefore imperative that potential entrepreneurs perceive themselves capable and psychologically equipped to succeed in entrepreneurial venture. Self-beliefs, self-assurance, self-awareness and feelings of empowerment are essential for both social learning (acquisition of appropriate positive attitudes) and social confidence

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(belief in one's idea and waiting to take it forward), and defines it as one's ability to perform certain activities successfully (European commission, 2012). Much research have been done on self-efficacy and its impact on entrepreneurial behaviour. For example, (Urban, 2012; Forbes, 2005; Bradley & Roberts, 2004) alluded that previous studies have been consistent on the fact that self-efficacy leads to entrepreneurial orientation.

A study conducted by Bird (1988) on intentionality, has been refined by Boyd and Vozikis, 1994), and both studies supported the argument that self-efficacy does impact on the development of entrepreneurial intentions and other actions. Furthermore, Krueger, Reilly and Carsrud (2000) claim that learned attitudes such as self-efficacy is vital for the field of entrepreneurial behaviour, while other authors seem to inflate its scope of influence and generalise that its importance embraces all endeavours of human beings.

Culture has been considered as a source of self-efficacy. For example, Bandura (1995) referred to culture as a source of self-efficacy, and claimed that culture may affect not only the type of information provided by the various sources, but also which information is selected and how it is weighted and integrated in people's self-efficacy judgements. By this statement, Bandura clearly highlights the relationship between culture and self-efficacy.

However, the way self-efficacy can come about has been neglected, thereby opening doors for researchers and academics alike, to write more on the topic. Hence, (Stevens & Gist, 1997; Vesper & McMullan, 1997; Earley, 1994, Gist & Mitchell, 1992) outlined that self-efficacy can be developed through training and modelling. Conducting this study, is therefore increasing the amount of literature in the field in an attempt to bring clarification on the topic, while responding to calls by (McGee, Peterson, Mueller & Sequeira, 2009) that more research on Entrepreneurial Self-Efficacy (ESE) are needed in order to understand causal directions and see how it can be related to venture performance.

It is from this perspective that the current study finds its justification, with the aim to investigate how cultural values such as language, religion and traditions affect the individuals' self-efficacies. Arising from this aim, the study can formulate the following hypotheses:

H1: The language frequently spoken by entrepreneurship students positively affect their entrepreneurial self-efficacy;

H2: The religion of entrepreneurship students positively affects their entrepreneurial self-efficacy;

H3: Customs and traditions of entrepreneurship students positively affect their entrepreneurial self-efficacy.

In South Africa, a few studies on self-efficacy have made recommendations geared towards enhancement of self-efficacy. For example, (Krueger et al., 2000) recommend that government initiatives can yield positive results only if they are perceived in a way that influences entrepreneurial self-efficacy and intentions. They go further and articulate that education as well as training should focus not only on technical and managerial competencies, but also on people's self-efficacies.

As articulated by Luthans, Stajkovic and Ibrayeva (2000), many people from emerging economies who might have the aspiration to behave entrepreneurially, are not doing so, due to the lack of self-belief and the necessary entrepreneurial skills. The same occurrence is observed in South Africa, where this lack of "can-do" attitude is prevailing with aspiring entrepreneurs having a low self-belief, lack of experience, inadequate education and lack of access to finance and business oriented-networks (Herrington, Kew & Kew, 2010; Urban, 2006).

In their study, Lenartowicz & Roth (2001) show how culture influences self-efficacy and how some cultures put high importance on motivational domains, including self-efficacy while influencing the person's cognitions and beliefs. Similarly, (Urban, 2012; Bandura, 2001, 1997, 1986; Bird, 1989; Boyd & Vozikis, 1994; Stajkovic & Luthans, 1998) indicate that self-efficacy is based on tenants of social cognitive (SCT) which favours the concept of interaction where behaviour, personal factors and environmental influences all operate interactively as determinants of each other. As a result, individuals with higher entrepreneurial self-efficacy perceive their environment as more opportunistic and become more confident of using that perception to achieve their goals (Urban, 2012; De Noble, Jung & Ehrlich, 1999; Chen, Greene & Crick, 1998).

The figure below represents the study model, where the independent variable of cultural values is operationalized through language, religion, customs and traditions to investigate its impact on dependent variable of self-efficacy.
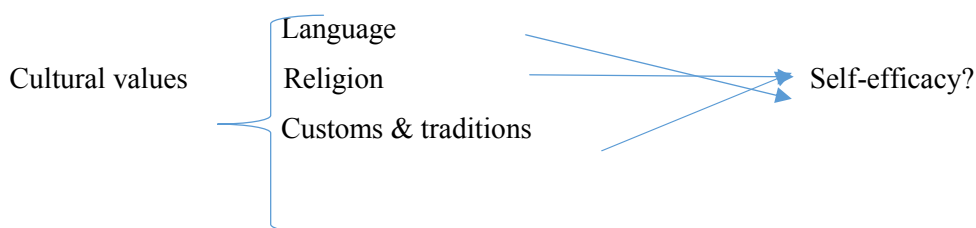

Figure 1

Source: Author's notes

- **Arrangement of the study**

This article is arranged in the following way: the next section reviews the literature on cultural values, as well as self-efficacy. The methodology section will follow, before findings are presented and analysed. The conclusion and recommendations will end the article.

2. Theoretical Overview

2.1. Cultural Values

In recent years, researchers, educators, psychologists as well as social scientists have paid a particular attention to the importance of cultural values and their influence on people's behaviours and lifestyles and concluded that society's performance and actions are driven by cultural values (McFeeters & Bennett, 2013). However, each discipline has defined cultural values from its own perspective, while different methods have been used to measure and study cultural values that are specific to it.

Cultural values are defined as the beliefs, symbols, specific norms and personal values that are shared by people in a society (McFeeters & Bennett, 2017). Similarly, Sagiv & Schwartz, 2007; 2000; Schwartz, 2007; 2004; 1999) refer to cultural values as guidelines that describe how people behave and how organisations should perform.

Previous study by Schwartz (1999) had stated that cultural values tell people, policy-makers as well as organisational managers how to behave, as well as serving them as guiding principles for their lives. Schwartz (2010) makes a distinction between western values and socialist values. He asserts that western values promote success, self-assertion and drive, thereby being competitive and confrontational. Socialist societies are opposite, where in some countries, cultural values emphasis is more on cooperation, equality and concern for others. Concerning African indigenous societies and their cultural values, (Tondi, 2016; Davidson, 1994) ascertain that prior to the encounter between European and African cultures, African cultural values provided them with …" a confident sense of exercising a real control over their lives". According to McFeeters (2013), various cultures are at liberty to interpret their cultural values depending on what they deem important for them.

In his study on cultural values, Hofstede (2001) covered more than 50 countries and settled on five dimensions of values that constitute each culture:

- Power distance;
- Uncertainty avoidance;
- Individualism vs. collectivism;

- Masculinity vs. femininity, and
- Long term orientation.

For the purpose of the current study, the dimension of long-term orientation is more relevant as it suggests that cultures with long-term orientation are very fugal and encourage their members and children to work hard. Similarly, (Kalitanyi & Bbenkele, 2017; Stevens, 2013; Bandura, 2004) posit that when individuals receive realistic boost through verbal messages and social encouragements, it can lead to people believing in themselves, exerting greater efforts, which increases chances of success.

As rightly put, (Tondi, 2016; Vilakazi, 2001), the issue of cultural values is complex and efforts inhibiting in some instances in Africa. There is on one side, indigenous Africa that is characterised by the essence of values, morality and philosophy, wisdom, culture as well as political philosophy of African civilisation. On the other side, this set of values has to coexist with another culture that has its ethos without any link with African village.

The cultural values that have been used in the current study are language, religion, customs and traditions and will be analysed to assess their impact on self-efficacy of entrepreneurship University students in Cape Town. A similar research that has been conducted in Turkey by Altinay (2008) used language, religion and education and ascertains that these cultural attributes have a huge contribution in developing abilities that are required in keeping the venture alive. The current study aims to test whether these cultural components will show similar results in South African environment. The following paragraphs drawn from a study by, Hofstede, Noorderhaven, Thurik, Uhlaner, Wennekers, & Wildeman (2004) highlight two forms of alternatives in which cultural influence may be exercised. They are relevant to the current study and contribute to its contextualisation:

Firstly, there is a positive aggregate effect, which would take place when culture shapes economic and social institutions, thereby strengthening the people's beliefs.

In South Africa, a closer look on cultural settings and the resulting effects, would lead to conclude that economic and social institutions are shaped by the culture. Therefore, the current study will prove the relevance of this statement concerning how people's beliefs are strengthened by their cultures.

Secondly, where culture is relatively unfavourable for entrepreneurship, "dissatisfied" individuals would seek personal realisations that foster their beliefs leading to self-employment.

The above statement is also true in South Africa, a country where culture - in many segments of the population – does not seem to be favouring entrepreneurial initiatives. Simultaneously, some individuals consider themselves excluded due to

their cultural backgrounds, thereby pushing them into nurturing their beliefs for self-employment.

2.2. Link between Culture and Self-Efficacy

As mentioned earlier, Bandura (1995) ascertains that culture is a source of self-efficacy. This relationship should be viewed from a number of perspectives such as being the spring of self-efficacy as well as an instrument for identification and processing of correct and useful information.

In the view of Bandura (1997; 1986), self-efficacy is partially socially constructed, but this construction is hugely impacted on national culture. Hopp and Stephan (2012) postulate that community-level cultural norms (performance-based culture and socially supportive institutional norms) affect some major supply-side variables such as entrepreneurial self-efficacy and entrepreneurial motivation. In contrast, Urban (2006) argues that little evidence exists between both constructs (culture and self-efficacy), and with no surprise, this affirmation still stands even more than a decade later.

Bandura posits that individuals do live their lives neither entirely interdependently nor entirely autonomously in their communities. They rather live in both personal and collective affects. Therefore, their reactive emphasis will depend mostly on which affect they are raised in. This can therefore justify a low level of entrepreneurial spirit, and perhaps a lower level of self-efficacy, a situation that will be confirmed at the end of this study. Stevens (2013); Orford, Wood and Herrington (2004) ascertain that peoples' beliefs in their own abilities and skills to succeed, is an important tool to start a business and this measure is low in South Africa. Bandura argues further that not only self-efficacy beliefs are shaped by cultural embeddedness, but also, the purpose to which they are put, and the social structure arrangements through which they are best exercised.

Erez & Earley (1993) attest that cross-cultural studies have concluded to the general value of efficacy beliefs. Hence, a year later, Earley (1994) advances that a strong perceived efficacy fosters both individual and societal performances in their endeavours. Additionally, Earley (1994) claimed that self-efficacy is influenced by a variety of sources of information that are more or less persuasive due to personal cultural values.

2.3. Entrepreneurial self-efficacy

In similar fashion, Urban (2006) and Bandura (1997) define self-efficacy as one's level of confidence in performing specific tasks and it is at the centre of the cognitive motivator that predicts the behaviour, while Ajzen (1987) refers to self-efficacy as the person's beliefs in his/her ability to execute a targeted behavior.

Krueger (1993) has emphasized the role of self-efficacy as defined by the European commission above, and Krueger, Reilly and Carsrud *(*2000) pointed out that previous studies have identified self-efficacy as a key contributor to entrepreneurial intentions, either directly or indirectly through influencing perceived feasibility. Markaman, Balkin & Baron (2002) append that some recent studies have related self-efficacy to the pursuit of entrepreneurial activity, perseverance in difficult fields and personal effectiveness and associated with greater work satisfaction (Bradley & Roberts, 2004). All these studies have been conducted in an environment other than South Africa. By undertaking the current study, we aim to verify whether the same conclusions can also be reached.

"Self-efficacy reflects the individual's innermost thoughts on whether they have the abilities perceived as necessary to afford a task, as well as the belief that they will be able to translate those skills into a chosen outcome" (Bandura, 1997). Similarly, other researchers have noted that self-efficacy motivates people throughout their lives, rather than by objective ability, and that our perceptions affect both our affective states and our behaviours (Markham et al., 2002).

Because Krueger and Brazeal (1994) considered self-efficacy as the alleged personal ability to execute target behaviour - that is attribution of personal competence and control - they deduced that self-efficacy is conceptually and empirically allied to attribution theory that experienced a spectacular growth interest in entrepreneurship field.

How to Promote Self-Efficacy

Promoting self-efficacy is more than teaching competencies, where students or trainees should fully incorporate those competencies through perceived mastery. Therefore, learning institutions or governments should provide credible models of critical behaviours, taking into account that non-credible models can result in reduction of self-efficacy (Krueger & Brazeal, 1994). Psychological and emotional support will also boost self-efficacy. Importantly, and consistently with the current study, Kourilsky (1995) and Dyer (1994) advanced that self-efficacy can be enhanced through social persuasion, or from the positive encouragement and feedback that individuals are given by lecturers, facilitators and instructors, through entrepreneurship programmes.

Kalitanyi and Bbenkele (2017); Stevens (2013) and Bandura (2004) append that when individuals receive realistic boost through verbal messages and social encouragements, it can lead to people exerting greater efforts, which increases chances of entrepreneurial success. These opinions will be enhanced by the recommendations towards the end of this article.

Role of self-efficacy

In order to achieve their goals and objectives, it is crucially important that people become confident that they possess the skills and abilities needed to perform all the necessary tasks, particularly self-efficacy (Hopp & Stephan, 2012). Evidence throughout a number of populations and research fields such as academic achievement, health behaviours to work performance as well as methodological approaches, have all been consistent on the fact that efficacy beliefs are significantly contribute to motivation and performance (Hopp & Stephan, 2012, Bandura & Locke, 2003).

Consistent with this view, the creation and operation of a venture need a substantial confidence into the individuals' abilities to face the challenges and persevere when faced with difficulties and obstacles (Hopp & Stephan, 20012; Markam & Baron, 2003). Townsend, Busenitz & Arthurs, 2010) append that self-efficacy has been found to be predictive of progress in establishment of an operational venture.

Self-efficacy is regarded as one of the determinant of whether people achieve their goals The European commission (2012) stipulates that self-efficacy helps to determine a number of crucial issues in the realisation of an objective, including the amount of time and effort, the level of perseverance and how resilient they can be when faced with obstacles. It represents serious cognitive bias because it leads to the false perception of a very low possibility of failure, while it is an important prerequisite for entrepreneurial actions.

In their study in East Germany, Utsch, Rauch, Rothfufs, & Frese (1999) concluded that self-efficacy, or belief in one's ability to succeed and control rejection of outside forces, is the major difference between managers and entrepreneurs. Chen, Greene & Crick (1998) report that self-efficacy's importance on students is that it instils in them the skills needed to plan and make strategic decisions, regardless of their personality traits, while it helps potential entrepreneurs to ensure that they follow through with their intentions.

Similarly, Krueger and Brazeal (1994, p. 94) posited that self-efficacy is closely associated with initiating perseverance in behaviour under high uncertainty, to setting higher goals and to reducing threat rigidity and learned helplessness. "No self-efficacy, no behaviour", affirm Krueger & Brazeal (1994). Bandura & Wood (1989) append and claim that self-efficacy contributes to the reduction of behavioural rigidity in the face of threats, while it fortifies persistence and performance in the face of harsh conditions.

Self-efficacy predicts opportunity recognition (Krueger & Brazeal, 1994). Therefore, it is not surprising that self-efficacy perceptions appear central to intentions of entrepreneurship (Scherer, Adams, Carley, & Wiebe, 1989). In the

view of Stevens (2013) and Bandura (1997), self-efficacy in our abilities comes from four key sources:

Mastery experiences: it is regarded as the most efficient way of implanting a strong sense of efficacy through personal successes. People interpret it as a result of one's past performance (Zeldin & Pajares, 2000, p. 216), and more importantly, experience of overcoming obstacles through perseverance and build a robust efficacy.

Social Modelling: having people similar to oneself who succeed through by perseverant efforts raises observer's beliefs in their own abilities (Bandura, 2004). Bandura's opinion came as a contrast to Boyd and Vozikis' (1994) opinion that learning vicariously provides a slightly less effective method of strengthening self-efficacy than personal mastery.

Social persuasion: where individuals receive realistic boosts through verbal messages and social encouragement it can lead to people exerting greater effort, which increases chances of success. This results in the continued development of skills and of personal efficacy (Zeldin & Pajares, 2000).

Judgments of our own physiological states: are also seen to influence efficacy. While assessing individual capabilities, people often consider partly their own perceptions of their physiological situations. Emotional stimulation and tension may be interpreted as indicators of vulnerability to poor performance (Boyd & Vozikis, 1994).

For the purpose of this study, only social persuasion as part of socio-cultural aspects is discussed. Other socio-cultural aspects fall outside the scope of the study.

3. Methodology

3.1. The Research Approach

The research approach used for this study was hypothetico-deductive method. This method suggests that researcher formulates hypotheses to be tested by the observable data. For the purpose of the current study, statistical operations (bivariate analysis, Anova and Chi-Sqaure for nominal data) were performed in order to test specific hypotheses towards accepting or rejecting them. The following are the steps through which the study was conducted:

- The literature review on cultural values, link between culture and self-efficacy, how to support self-efficacy and role of self-efficacy.

- The questionnaire was designed before its pilot-test.

- Collection of data was done in classrooms from entrepreneurship students.

- Data were captured with the use of SPSS22 to generate the statistical data.

- Lastly, the data were analysed and interpreted.

3.2. Research Design

According to Bless, Higson-Smith & Kagee (2006), research design relates directly to the testing of hypotheses, while being a specification of the most adequate tasks to be performed in order to test those specific hypotheses under given conditions. In this process, a researcher should ask himself the question of "What steps should be taken in order to demonstrate that a particular hypothesis is true and that all others must be rejected?" The following sections describe the steps undertaken during the process of conducting this study.

3.3. Research Strategy

The research strategy adopted by the current study was a survey-correlational. Neuman (2005, p. 250) argued that a survey is often called correlational, while Babbie and Mouton (2001) posit that a survey usually adopts both qualitative and quantitative methodologies. This type of study makes use of sample from a population and analyse the data using statistics to make inferences about it. This study also used both methodologies, with statistical data to make it more accurate. For the purpose of this study, the researcher out to figure out –through statistical analysis - whether cultural values have impact on university students' self-efficacy.

3.4. Questionnaire Construction

For the purpose of the current study, the questionnaire construction followed the model of Willemse (2009, pp. 15-17), suggesting that the structure of the questionnaire should ensure a logical flow from question to question, and that any radical jumps between topics will tend to confuse, derail or disorient the respondents and will influence the answers given.

During the process of designing the questionnaire, aspects such as complexity, length, layout and wording were given a particular attention, taking into account, Baker's (2003) argument that effective communication depends on the design and phrasing of the questions. After designing the questionnaire, a pilot test was conducted to check whether the questionnaire was ready for application.

For the purpose of the current study, preliminary data for developing the questionnaire were collected using face-to-face interview from both entrepreneurship lecturers and students. Furthermore, an already used questionnaire was identified, and together with the data collected from lecturers and students, a new questionnaire was compiled with the following main sections:

- Administrative part: date, name, address;
- Classification part: age, gender, race, marital status, occupation;

- Subject matter if inquiry (questions).

3.5. Determination of the Population

The process of determining the population started with the researcher making numerous contacts with relevant personalities from the universities that were the units of investigation of the study, in order to find out the total number of students doing entrepreneurship programme. Those contacts resulted in the figures reflected in the table below:

Table 1. Determination of the population

University	Number of students and level of study		Source of info
	Undergraduate	Postgraduate	
University of Cape Town	57	62 MBA	Administrative staff and program coordinator
University of Stellenbosch	250	40 MBA	Administrative staff and subject lecturer
University of the Western Cape	170	52 Honours	Administrative staff and program coordinator
Cape Peninsula University of Technology	335 for both under and postgraduate		Administrative staff and head of department
TOTAL	966		

3.6. Determination of the Sample

The determination of the correct sample is crucial to avoid a waste of time and money that may result in taking larger sample. At the same time, researchers need to avoid smaller sample that may not be representative, thereby rendering findings inconclusive (Willemse, 2009). Below are the three main factors on which the correct sample depends according to Willemse (2009).

1. The level of confidence desired – this as selected by the researcher
2. The variability in the population being studied – so if the population is widely dispersed, a large sample is required, while a small dispersion would require a smaller sample.
3. The maximum allowable error (E) – this is the maximum amount a point estimate should - in the opinion of the researcher - differ above or below the parameter being estimated, i.e. the difference between the sample mean and the population mean.

In a similar vein, and in accordance with The Research Advisors (2006), it is possible to use one of the sample calculation formulae to construct a table that suggests the optimal sample size – given a population size, a specific margin of error, and a desired confidence interval. Below is also a formula that, according to Researcher Advisors (2006) is used in the calculation of the sample size.

Formula for sample calculation according to The Research Advisors (2006)

$$n= (X^2*N*P*(1-P))\div(ME^2*(N-1))+(X^2*P*(1-P))$$

Where: n= sample size

X^2=Chi – Square for the specified confidence level at one degree of freedomN= Population size

P= Population proportion (.50 in the table above)

ME= Desired margin of error (expressed as proportion)

Thus, for the purpose of the current study, the four universities that were the units of investigation had a total of ± 966 entrepreneurship students and students doing programmes involving entrepreneurship modules. With a 95% confidence level considered, together with a margin error of 5%, a sample of between 260 and 278 was considered sufficient as suggested by Research Advisers (2006). Hence, the researcher settled on 270 as the sample for the study.

Table 2. Population and sample

University	Number of students*
UCT	119**
US	290
UWC	222
CPUT	335
Total	**966**
Sample	**270**
*2013 academic year figures.	
**This figure from UCT only involves undergraduate students, plus full-time MBA students, but excludes modular students.	

3.7. Data Collection

The process of distributing the questionnaires, and have them completed and returned is described in the following paragraphs.

At UCT, the researcher was granted permission to use the students as respondents, after which the data was collected. At the University of Stellenbosch Business School (USB), the researcher got assistance from administrative staff who distributed the questionnaires to all 40 MBA students. These questionnaires were filled in self-administered format, and returned them to the administrator, from whom they were collected by the researcher. At US main campus, the researcher physically collected data from 82 students after liaising with one of the lecturers. Eighty-one questionnaires were successfully completed.

At UWC, after scheduling a meeting between the lecturer and the researcher, data collection took place when a total number of 52 students were in class and all completed the questionnaires.

At CPUT, the process of questionnaire distribution, data collection and questionnaire collection was completed in collaboration between the researcher and four different lecturers from the entrepreneurship department. They all received, distributed and collected the 335 completed questionnaires from the students.

3.8. Data Analysis and Interpretation

The collected data was coded by means of the Statistical Program for Social Science (SPSS, version 22). The SPSS was utilised to generate the descriptive statistics, as well as correlation statistics. Then descriptive statistics were compiled with the help of Univariate Analysis (frequency tables, pie chart and histograms), while correlation was done by using a combination of factor analysis (Bivariate analysis), analysis of variance (ANOVA) and Chi-square for nominal data (Multivariate analysis).

4. Findings
4.1. Regression Analysis
The formula for regression equation as used in this article is: (y) = a+bx
Where: x and y are the variables
b= the slope of the regression line
a= the intercept point of the regression line and the y axis

Table 4.1. Regression between language and self-efficacy

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.316	.229		14.506	.000
	A poor language skill is an obstacle to entrepreneurship.	-.042	.033	-.082	-1.278	.202
	The language we speak at home is the same as the language we use at school.	.035	.031	.090	1.137	.257
	There is sufficient entrepreneurship information available in my home language.	.000	.038	.001	.007	.994
	There are many people who speak my home language and who are entrepreneurs.	-.041	.044	-.076	-.931	.353
	The understanding of the language facilitates social and economic integration and productivity.	.126	.052	.190	2.394	.017

The stronger the communication skills of an entrepreneur, the more confident he will be.	.205	.063	.292	3.233	.001
The stronger the communication skills of the entrepreneur, the easier it becomes to penetrate a mainstream market successfully.	-.083	.058	-.123	-1.434	.153
Dependent Variable: Self-efficacy					

The results provided by the regression analysis concerning the variable of language indicate a statistical significance with a model summary of *0.080>0.05*, while the "p" value indicates *0.000<0.05*, meaning that the model fits the data. Table 4.1 above shows how language is an important factor to positively influence the self-efficacy among entrepreneurship students. The item about the understanding of the language facilitates social and economic integration and productivity, and so does the item about the stronger the communication skills of the entrepreneur; both have a positive relationship with the variable of language, which means this variable influences entrepreneurship students in becoming self-confident. This led to the conclusion of retaining the first hypothesis of the study that "The language frequently spoken by entrepreneurship students positively affect their entrepreneurial self-efficacy".

These items had *p=0.017* and *0.001* respectively, and this means that the variable of language increases the chances of self-efficacy among entrepreneurship students. This finding also correlates with what Levent, Masurel & Nijkamp (2003) said, "If communication is stronger, the entrepreneur has a higher level of confidence to seek capital from banks and other financial institutions, rather than relying on co-ethnic capital". The language does not only support self-efficacy, but also entrepreneurial initiatives as confirmed by Altinay (2008) when he articulates that the availability of information in a language that one uses regularly is a major boost for entrepreneurial behaviour. A study conducted by Magongwe and Oliver (2007) in Botswana, also presents a correlation with this finding, when they report that there is a positive correlation between the use of language and self-efficacy.

Such a finding that language supports self-efficacy did not come as a surprise because it is widely recognised that the ability to communicate effectively, good command of language, as well as the possession of articulation skills make people confident in almost all their endeavours.

Table 4.2. Regression between religion and self-efficacy

Model		Unstandardised coefficients		Standardised coefficients		t	Sig.
		B	Std. Error	Beta			
	(Constant)	3.947	.162			24.333	.000
	Religion is the main instrument to shape all the norms in my society.	.057	.035	.122		1.633	.104
	Religion is a barrier to the business initiatives in my society.	.040	.059	.075		.680	.497
	Religion is a barrier to the business growth in my society.	-.098	.064	-.183		-1.532	.127
	Religion constitutes a barrier to capital access in my society.	.064	.053	.120		1.216	.225
	My religion allows me to perform entrepreneurial activity.	.028	.033	.063		.864	.388
	Our family religious beliefs have helped some family members to become entrepreneurs.	-.078	.041	-.166		-1.881	.061
	Our family beliefs facilitate business networking.	.046	.041	.090		1.101	.272
Dependent Variable: Self-efficacy							

In order to establish the relationship between religion and self-efficacy, regression analysis was conducted, and results show the model coefficients of *0.006<0.05*, while the model summary indicates *0.296>0.05*. This means that the model does fit the data.

Looking at the individual items in the table 4.2, there is no single item that fits the model, meaning that this variable of religion does not increase the chances of self-efficacy among entrepreneurship students from Cape Town Universities. This led to the conclusion of rejecting the second hypothesis of the study that "The religion of entrepreneurship students positively affect their entrepreneurial self-efficacy".

Previously, studies conducted about language and business, had reached conclusions that religion can be a barrier to business growth (Metcalf, Moddod and Virdee, 1996). In support of this statement, they posit that Indians are more successful business people than their Pakistani counterparts, who rely heavily on the influence of religion, which prohibits the payments of interest rates, among other issues.

Table 4.3. Regression between customs/traditions and self-efficacy

Model	Unstandardised coefficients		Standardised coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	2.962	.225		13.181	.000
In our customs and traditions, we learn about life skills such as self-reliance.	.111	.043	.176	2.566	.011
In our customs and traditions, we learn about entrepreneurial skills.	.005	.050	.009	.098	.922
In our customs and traditions, we exercise entrepreneurial behaviour.	.042	.047	.075	.885	.377
In our tradition, we like to implement our own ideas.	.120	.045	.199	2.677	.008
In my traditions, women are still excluded from important economic positions.	-.023	.033	-.048	-.693	.489
Female family headship is an entrepreneurship hindrance in my society	.040	.033	.083	1.201	.231
There is no gender-based separation of work in my society.	.031	.031	.061	.998	.319
Dependent Variable: Self-efficacy					

The regression analysis between the independent variable of customs/traditions and the dependent variable of self-efficacy has shown that the test of model coefficients was significant at *p=0.000<0.05* and the model summary indicated *0.127>0.05*. This means the model fits the data. Considering the individual items in the table above, two items with *p=0.011* and *0.008* are considered to have an impact on entrepreneurship students' self-efficacy. Since these items of the variable have a positive influence, it means that the variable of customs and traditions increases the chances of self-efficacy among entrepreneurship students. This leads to confirm the third hypothesis that "Customs and traditions of entrepreneurship students positively affect their entrepreneurial self-efficacy".

Hampel-Milagrosa, Van Hong, Quoc & Thanh (2010) argued that female with entrepreneurial orientations feel frustrated as their roles of carrying almost all family responsibilities, make their entrepreneurial ventures more difficult than their male counterparts and this may results in giving up their business orientations. An example was taken from Vietnam environment where women occupy subordinate economic roles, while men make all the important decisions. However, according to Hampel-Milagrosa, Van Hong, Quoc & Thanh (2010) traditions play a major role in determining the behaviour of the people in many parts of the world. In those societies, members are mobilised to be self-reliant and confident in their

undertakings, including entrepreneurship. No distinction of gender was mentioned here, hence we conclude that this claim is in line with the current study.

4.2. Correlation Analysis

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{\left(\sum X^2 - \frac{(\sum X)^2}{N}\right)\left(\sum Y^2 - \frac{(\sum Y)^2}{N}\right)}}$$

Figure 2. Formula for correlation

Table 4.4. Explanation of the formula

N = Number of values or elements	$\sum X$ = Sum of first scores
X = First score (any of the independent variables)	$\sum Y$ = Sum of second scores
Y = Second score (entrepreneurial or self-efficacy)	$\sum X^2$ = Sum of square first scores
$\sum XY$ = Sum of the product of first and second scores	$\sum Y^2$ = Sum of square second scores

Table 4.5. Correlation between language and self-efficacy

Item	Pearson Correlation	"p" value
The language we speak at home is the same as the language we use at school.	0.133	0.032
There are many people who speak my home language who are entrepreneurs.	0.131	0.035
The understanding of language facilitates social and economic integration and productivity.	0.251	0.000
The stronger the communication skills an entrepreneur has, the more confident he will be.	0.257	0.000
The stronger the communication skills an entrepreneur has, the easier it becomes to penetrate the mainstream market successfully.	0.147	0.018

From Table 4.5, the following findings were made concerning the relationship between various items of the independent variable of language compared with the dependent variable of self-efficacy:

All five items (out of seven) have a correlation value (r) of more than *0.005*, with two of them having a par value of *0.000*. It can therefore be concluded that the independent variable of language has a relationship with the dependent variable of self-efficacy. This finding is very important, as it confirms the claim that language as an instrument of communication is an essential asset that enhances self-efficacy.

This finding enriches the literature in this field, and it correlates with what Altinay (2008) alluded to that people become more convinced about entrepreneurial behaviour, if they are confident about their level of skills to bring the initiative to a successful end.

In their study, Levent *et al*. (2003) alluded that "the stronger the language skills of the entrepreneur, the higher the level of confidence they will have to seek capital from banks and other financial institutions, and they will rely less on co-ethnic capital". This claim is in line with the above finding. They go further to say that the ability to communicate effectively in a language, permits entrepreneurs to break into the mainstream market successfully, while the availability of information in a language that one speaks fluently supports entrepreneurial initiatives (Altinay, 2008). The relationship between religion and self-efficacy did not show any correlation, which means the variable is not statistically significant.

Table 4.6. Correlation between customs and traditions and self-efficacy

Item	Pearson Correlation	"p" value
In our customs and traditions, we learn about life skills such as self-reliance.	0.273	0.000
In our customs and traditions, we learn about entrepreneurial skills.	0.251	0.000
In our customs and traditions, we exercise entrepreneurial behaviour.	0.252	0.000
In our tradition, we like to implement our own ideas.	0.317	0.000

From Table 4.6, the following findings were made concerning the relationship between various items of the independent variable of customs and traditions compared with the dependent variable of self-efficacy:

Only four out of seven items show a correlation "p" of more than *0.005* with a par value of *0.000* for all four. It can therefore be affirmed that there is a relationship between the independent variable of customs and traditions and the dependent variable of self-efficacy. This shows that the variable of traditions and customs is statistically significant. Looking at the above items that positively influence self-efficacy, it is important to emphasise the role and importance of teachings and activities that may take place at home for the future of the children. This is supported by what Nsaminang (2007) said as mentioned in the literature review section that: "Different cultures invest in children, not as an end state, but in recognition that tomorrow's adults are the products of their childhood".

This finding also underscores President Mandela's call that we have to make every home, every shack or rickety structure, a centre of learning.

5. Conclusion and Recommendations

The study's objectives were three folds: firstly, to investigate if the language frequently spoken by entrepreneurship students positively affect their entrepreneurial self-efficacy. Secondly, to examine if the religion of entrepreneurship students positively affect their entrepreneurial self-efficacy and lastly, to explore if customs and traditions of entrepreneurship students positively affect their entrepreneurial self-efficacy.

In order to place the article in its context, the literature on cultural values, as well as on self-efficacy was reviewed. The literature provided a background of the topic under investigation, while uncovering some gaps that have been overlooked by some researchers. The study made use of statistical inferences to be able to arrive at the reality of the topic under investigation.

After this analysis, it was discovered that the dependent variable of language supports the independent variable of self-efficacy. The same finding went for the variable of customs and traditions towards self-efficacy. However, the variable of religion was not found to influence self-efficacy. This led to the conclusion of accepting H1 and H3 set out earlier, while H2 has been rejected as mentioned earlier.

Taking into account the South African socio-economic context within which this study has been conducted, the results of this study are of paramount significance, as they show the opinions of university students doing entrepreneurship programme about the role of culture on self-efficacy. The study has briefly discussed the mechanisms of how to enhance self-efficacy, and yet, the findings show that self-efficacy may come from our language and our daily routines and traditions. We can therefore make the following practical recommendations that may bear positive consequences on entrepreneurial behaviour in South Africa:

• Universities that were units of investigation to explore the possibilities of including self-efficacy programmes in their curricula;
• The same Universities to invite successful entrepreneurs to speak to the students in an attempt to instil self-efficacy;
• Universities that were units of investigation to make provision of entrepreneurial self-efficacy materials in languages that students speak the most.
The communities where students live are recommended to:

• Enhance customs and traditions that support entrepreneurial self-efficacy;
• Introduce features of self-reliance in their customs and traditions practices.
Given the heightened level of needs in entrepreneurial behaviour in South Africa, the concerned departments of the South African government are recommended to work more closely with universities, especially those that were concerned by the study, in order to draw a pool of real needs so that the necessary resources can be

rightly deployed. This can be an important partnership which would support a big number of entrepreneurs who do not have business background and low level of self-efficacy.

6. Limitations of the Study and Directions for Future Research

The geographical scope and the age of the respondents, constitute the major limitations of this study. The study was only conducted in Universities of Cape Town city, and even though the respondents come from all parts of the country, it cannot be said that the results and findings represent the opinion of the whole country.

Most of the respondents are undergraduate students that are still in transition in terms of deciding what to do or become in their lives. This rends these results relatively inconclusive. Lastly, the study only involved university students. The researcher is aware of the existence of a significant number of young people who might be interested in voicing their opinions. Unfortunately, due to time and scope of the study, they were not heard. This gives direction for future research. Moreover, future research should also consider covering more universities and young entrepreneurs in various parts of the country.

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The Saint-Louis Equation Rebirth: Re-Accessing Fiscal and Monetary Policies Mix in Nigeria

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Abstract: This study restates the Saint-Louis equation to reinvestigate the relative effectiveness of fiscal and monetary policies on the Nigerian economy. This study used annual data series, from 1981 to 2015. The unit root test conducted revealed that each of the variables has stationarity at first difference. The rejection of null hypothesis on the ARDL Bound testing confirms a level relationship among the variables. The Autoregressive Distributed Lag (ARDL) technique is then used to examine the short-run and long-run relationship among the chosen variables. Also, the ARDL parameter estimates are used to compute the impulse response function in order to shed light on fiscal-monetary impacts' puzzle in the existing literature. The impulse response function (IRF) shows that, GDP responses to fiscal and monetary policy shocks are both positive and negative. Ultimately, the IRF allows us to find out that the very long-run responses of GDP to fiscal and monetary policies shocks are negative and positive. In conclusion, we found out that monetary policy is more effective than the fiscal policy in Nigeria. Given this, we suggest that government and policymakers should simultaneously apply both fiscal and monetary policies, such that their temporal and cumulative effect on the economy becomes positive.

Keywords: Saint-Louis Equation; fiscal policy; monetary policy; ARDL; Nigerian Economy

JEL classification: E52; E62; E63; P24

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1. Introduction

Both the Keynesians and the Monetarists have argued, more than a century, over the superiority of policies adopted by each party, but the fact remains that any policy formulation that is not projected or geared towards economic stability could be considered passive, ineffective or counterproductive. The two active economic policies used in stabilizing any economy are the fiscal and monetary policies. The major tools or instruments of these policies are government consumption spending and the money supply. Conceptually, monetary policy focuses on the control of availability, volume, flow, direction, and cost of credits within the economy, while fiscal policy is concerned with the generation of revenue through taxes, government expenditures, and debt control. In developing countries, both monetary and fiscal policies are used in a complementary manner to pursue economic stabilization. The complementarity use of monetary and fiscal policies is subject to debate among empirical economists and speculators. The classical economists argue that the economy is self-regulating, and that there is no need for government intervention. Theses economists believe in the ability of the economy to achieve full employment through its own internal mechanisms (Olofin & Salisu, 2014). However, this proposition became invalid during the great depression of the 1930s which gave birth to the three sector's macroeconomic modeling. Consequently, the fiscalists, championed by J.M. Keynes, proposed that only the intervention of government could drive the economy out of the great boredom.

In many developing countries, monetary policy is used to aid the implementation of fiscal policy (Laurens & de la Piedra, 1998). In other words, when the federal government spends in excess of her purse, the monetary authority may have to print more currency to cover the gap. Also, seignorage, which is one of the government's means of generating revenue, is through the printing of currency by the monetary authority. Lambertini and Rovelli (2003) argued that both fiscal and monetary policies have essential influences on the economy's aggregate demand. Monetary and fiscal policies are used complementarily in macroeconomic management. Based on this, there is need for the government to make use of the two policies simultaneously in such a way that the effect of one will not neutralize the effect of the other or turns the effect to be countercyclical – though the simultaneous effect of two policies differ on the economy.

Anderson and Jordan (1986) pioneered the investigation of the relative effectiveness of fiscal and monetary policy in stabilizing the American economy. He constructed a model of three variables, and formulated an autoregressive growth equation, popularly known as the Saint-Louis equation. However, this model has suffered a lot of criticisms because of its simplicity.[1] The first among the critics were Batten and Thornton (1986) who argues that the Saint-Louis equation

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[1] See (Batten & Thornton 1986).

excludes some relevant exogenous variables. A lot of model estimation problems have been attached as drawbacks to the Saint-Louis equation (Batten & Thornton, 1986). However, the major drawback that was used to castigate Anderson and Jordan (1986) was not grounded on a solid and correct econometrical foundation, and we shall extend this argument further for the purpose of re-definition and re-evaluation; hence, this will be useful for academic and research purpose.

Firstly, the original model was autoregressive in nature, and this assumption is too rigid. It is highly a theoretical to neglects the effect of the lags of dependent variable as a regressor in the model without testing for its exclusion. Also, one of the major criticisms of the model was that it did not include some relevant exogenous variables, but the fact is that it cannot be ascertained that the inclusion of some exogenous variables would really solve the simplicity-nature problem of the model. Some critics opined that government expenditure and money supply were too weak to be supplied in the Anderson and Jordan model, but the truth is that we are mainly concerned with what the whole agents in the economy could access easily; both government expenditure and money supply impacts could be felt by the whole citizens without carrying out any statistical investigation as the two tools are highly visible.

However, the principle of parsimony of the model should not be taken for granted. Using just the two variables could give us a better and clearer picture of what is going on in the economy. Virtually most of the economic activities in any economy wiggle around government expenditure and money supply. African nations and some developing countries are not excluded.

The major argument of this study is that, although, the original model estimated by Anderson and Jordan (1986) was expressed in a growth form, but the advancement in modern econometrics and statistics have allowed us to conduct empirical research with non-stationary data. Also, since the model is a single equation model, a method that would be able to capture the necessary dynamics should be used this time.

A lot of studies have adopted different techniques to access the relative effectiveness of fiscal and monetary policies on a particular economy, and jumped into long run and short run conclusion without showcasing the dynamics behind the result. The short run or the long run coefficients of an estimated model are necessary, but may not be sufficient in accessing the relativeness of fiscal and monetary policies. More dynamic information is needed to convince or to be convinced. In this study, we shall take a step further to redefine the Saint-Louis equation to re-investigate relative effectiveness of fiscal and monetary policies with Nigerian annual data and we shall adopt the Autoregressive Distributed Lag (ARDL) methodology to shed more light on the dynamic behavior of the economy in response to the two major tools shocks.

2. Empirical Literatures

There are some authors that have meticulously accessed the relative effectiveness of fiscal-monetary policies using the Saint-Louis equation over there decades and with mixed findings. Few of these studies are discussed below.

Adefeso and Mobolaji (2010) re-estimated and re-examined the relative effectiveness of monetary and fiscal policies on Nigerian economic growth using time series data that spanned 1970-2010. Cointegration and error correction techniques were adopted in their study. Their findings show that monetary policy is more effective than fiscal policy despite the exclusion of the degree of trade openness.

Oziengbe (2011) investigated the relative effectiveness of monetary and fiscal policy in Nigeria using a quarterly time series data that spanned 1981-2009. He adopted cointegration and error correction methodology. The result from his study showed a significant positive relationship between real gross domestic product and government expenditure, and he also found a positive relationship between real gross domestic product and one-quarter lagged value of money supply. The result also showed that the positive impact of monetary policy action on economic activities was more significant than that of fiscal policy within the period covered by the study.

Sanni, Amusa, and Agbeyangi (2012) investigated the superiority of fiscal and monetary policies in controlling economic activities in Nigeria using an annual time series data spanned 1960-2011. They adopted Error Correction methodology in their study. Their empirical result showed that none of the policies better off the other and that a proper mix of the policies may enhance a better economic growth.

David, Manu, and Dak-Adzaklo (2017) investigated the relative effectiveness of monetary and fiscal policies in Nigeria using a quarterly time-series from 1981-2012. This study employs the autoregressive distributed lag (ARDL) model. Their study shows that, in the short run, monetary policy affects income more than fiscal policy but the reverse is the case for the long run. The total impact of fiscal policy is higher than that of monetary policy.

Existing works have made a tremendous effort in examining and estimating the causal impact of monetary and fiscal policies on the Nigerian economy. However, most of the works do not follow the Saint-Louis equation specification and some that followed used a modified version of it. Some of the studies used incorrect methodologies for their empirical investigation while some that used correct methodologies do not report the necessary dynamics that can be used for further policy recommendations. This work, therefore, made efforts in restating the Saint-Louis equation in order to reinvestigate the relative effectiveness of fiscal-monetary policies in Nigeria using more advanced tools so as to be able to choose

and make appropriate policies justification to achieve different long run and short run set goals.

3. Methodology

Given the nature of this study, we source for historical data on the real gross domestic product, broad money supply and government expenditure for Nigerian economy to re-investigate the effectiveness of fiscal and monetary policies by estimating a redefined Saint-Louis equation. The data series covered the periods of 1981-2015. These historical data were obtained from the Central Bank of Nigeria annual statistical bulletin. Parametric (Augmented Dickey-Fuller) unit root test is employed to test for the stationarity of the three variables. In order to investigate the rich dynamic impact of fiscal and monetary policies on Nigerian economy, we employed an ARDL methodology. The ARDL optimal lags specification is selected using the information criteria using Eviews software. Technically, we do not describe the bound test approach to testing for cointegration in this study but the curious readers are advised to consult the reference (Pesaran, Shin, and Smith, 2001).

3.1. The Model and the Equation Specifications

The model used by Anderson and Jordan (1986) in their study was simply stated as, nominal GDP as a function of narrow money supply and full employment government expenditure. It is presented in algebraic form as shown in equation (1) below;

$$GDF_t = f(MS_t, GOV_t) \dots (1)$$

In order to estimate the model above, Anderson and Jordan (1986) specified the equation below in a baseline and distributed lag form;

$$\Delta GDF_t = \alpha + \sum \beta_i \Delta MS_{t-i} + \sum \gamma_j \Delta GOV_{t-j} + u_t \dots (2)$$

The equation (2) above suffered a lot of drawbacks as discussed earlier and there is a need for re-modification but not total condemnation. The model for this study will not by far deviate from the equation (1), however with little modifications as this study aims. The model in equation (1) above is presented below in a modified version;

$$GDF_t = f(GDP_{t-i}, MS_t, MS_{t-j}, GOV_t, GOV_{t-k}) \dots (3)$$

From the equation (3) above, the real gross domestic product is a function of its predetermined values, contemporaneous and predetermined broad money supply and contemporaneous and predetermined government expenditure. The delay parameters i, j and k determination is rested on the frequency of the data used and the selection criterion. Econometrically, the role of the predetermined variable(s)

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helps to shed light on dynamic information embedded in dynamic models. For estimation purpose, we present the new Saint-Louis equation in an iso-elasticy form; instead of the original baseline distributed lag form, based on the model stated in equation (2) above.

$$GDF_t = Ae^{v_t}\left(\prod_{i=1}^{i<\infty} GDF_{t-i}^{\theta_i}\right)\left(\prod_{j=0}^{j<\infty} MS_{t-j}^{\omega_j}\right)\left(\prod_{k=0}^{k<\infty} GOV_{t-k}^{\omega_k}\right)\dots(4)$$

The "A" is the total factor productivity, "v" is the stochastic error term, and the superscript parameters are the iso-elasticy of real GDP in response to the variables. The lag selection of the model is a critical issue that should not be overlooked. Ideally, every government spends four consecutive years in administration and this implies that the four years spending pattern would definitely be correlated and this implies that four years lag of government expenditure may be ideally optimal in the model (in the case of annual data); this may not true but we assumed it to be correct. The lag pattern of money supply may be hard to detect due to its stock nature. For estimation purpose, the lags (i, j and k) will be selected optimally using the Schwarz statistical information criterion. Log linearization of equation (4) becomes an ARDL specification. The advantages of ARDL methodology are that, it will enable us to investigate both the short and long run (gains) impact of variable(s) on the dependent variable, it will enable us to investigate the mean-median lag of response of the dependent variable to effect on the regressors and it will allow us to compute the dynamic response (step response function) of the dependent variable to the repressors' shocks. We shall use the bound test approach to cointegration in order to support the level relationship of the variables as opposed to the difference or baseline form of the original Saint-Louis equation. Technically, we do not describe the bound test approach to testing for cointegration in this study, but the curious readers are advice to consult the reference (Pesaran, Shin & Smith, 2001).

4. Empirical Analysis

Before we pursue the formal unit root tests, we plot the time series under study as it may help reveal the stationarity or integrating nature of the variable. The three variables were log-transformed (the small case variables are in log form) before using for estimation purpose. The log GDP, log broad money supply, and log government expenditure are examined graphically as depicted in figure 1 below. It can be shown from the figure 1 below that the log of the three variables show a visible pattern of trend and this implies that there is a tendency for the variables' means and variances not to be constant over time. In a unit root language, we may say that the logs of the variables are not stationary over the sample periods.

However, their respective difference filter at below of each graph shows that they are likely to be stationary after first difference. However, no numerical fact can be derived from the graphical inspection; based on this, we employed the Augmented Dickey-Fuller unit root tests to investigate numerically the stationarity properties of variables.

The probability values for the unit root tests in table 1 below prompt us to accept the alternative hypothesis at first difference, hence we may conclude that the variables in question are indeed first order integrated variables. This implies that estimating our equation in difference form may be highly spurious (unlike the original Saint-Louis equation which was in a difference and distributed lag form) and will lead to losses of long-run information; we may, therefore, need to test for cointegration among the variables. Interestingly, the stationarity nature of the variables had been suggested earlier by their graphical inspection in figure 1 below.
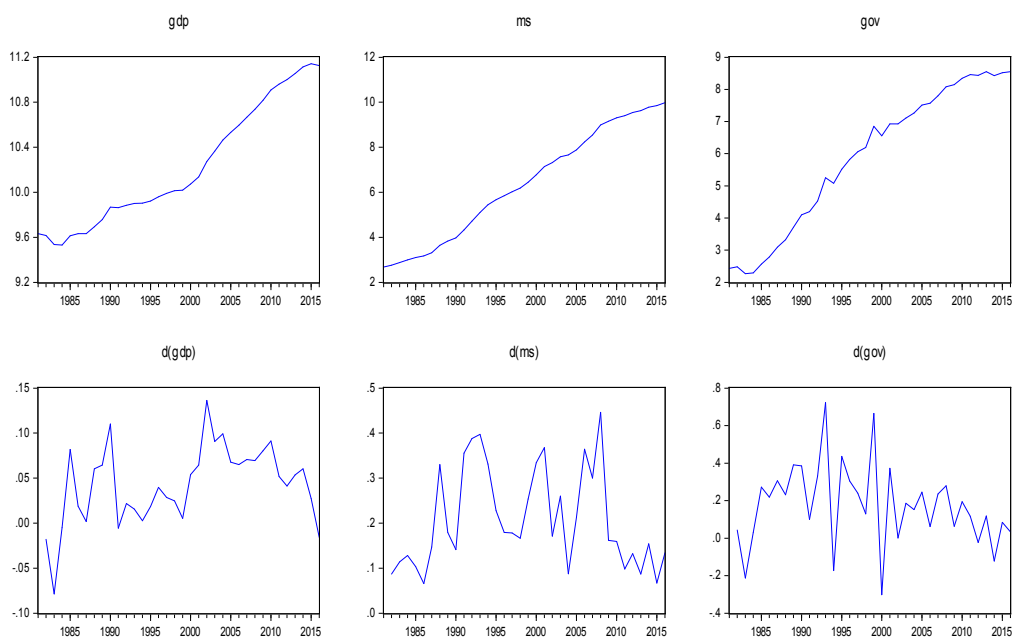

Figure 1. The log and log difference of GDP, broad money supply, and government expenditure

Source: Author's computation using Eviews

Table 1. Unit root test results

H$_0$: unit root		ADF @ level			ADF @ First difference		
H$_1$: stationary		gdp	ms	gov	gdp	ms	gov
C	t-stat	1.2121	-0.2896	-1.2120	-3.0447	-3.3157	-6.9427
	Prob.	0.9976	0.9165	0.6582	0.0407**	0.0219**	0.0000***
C&T	t-stat	-2.5289	-1.9711	-0.5699	-2.9068	-3.2567	-7.2842
	Prob.	0.3132	0.5963	0.9747	0.1730	0.0908*	0.0000***
No C&T	t-stat	4.3860	4.7829	2.8071	-1.9043	-1.0106	-4.7886
	Prob.	1.0000	1.0000	0.9982	0.0552*	0.2742	0.0000***

Source: Author's computation using Eviews

Note * (**) (***) denotes null hypothesis at 10%, 5% and 1% respectively. Where made used, C represents

Constant while T represents Trend. All variables are in log form

It is necessary to select the optimal lag for the ARDL model to estimate because; the subsequent tests and the dynamic information needed will be based on the model selected for estimation. Estimation of too much parameter will lead to proliferation and useful information will be lost. Also, selection of too much lag will reduce the available data for estimation and less degree of freedom will be available thereby making the result shaky. We use Schwarz information criterion (due to its parsimonious selection nature) to select the optimal lag for the estimated ARDL model. ARDL (2, 3, 0) model i.e. 2 lags for log real GDP, 3 lags for log government expenditure and 0 lag for log broad money supply, is selected by the Schwarz information criterion. From the model estimated, we compute the long-short run information as well as the dynamic response of real GDP to monetary-fiscal policies to temporary and permanent shocks. The below table 2 shows the estimated ARDL (2, 3, 0) model and we account for an outlier in the year 1990. It can be seen from the table 2 that, all the variables are statistically significant.

Table 2. ARDL (2, 3, 0) estimated parameters

Dependent variable: gdp

Adjusted sample: 1984-2015 (33 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
gdp(-1)	1.149754	0.103406	11.11887	0.0000***
gdp(-2)	-0.393237	0.091632	-4.291479	0.0003***
gov	-0.041360	0.020645	-2.003437	0.0570*
gov(-1)	-0.042984	0.019112	-2.249081	0.0344**
gov(-2)	-0.048469	0.026267	-1.845259	0.0779*
gov(-3)	0.054669	0.021615	2.529234	0.0187**
ms	0.123447	0.032086	3.847429	0.0008***
dummy(1990)	0.109333	0.009550	11.44891	0.0000***
constant	2.182707	0.322223	6.773911	0.0000***
R^2-Adjusted	0.998246			
F-stat	2206.9[0.0000]***			
	0.02			

RSS	0.0104
LM(1)	0.3003[0.5837]
LM(2)	2.5017[0.2863]
LM(3)	2.5113[0.4732]
χ^2-ARCH(1)	0.0479[0.8267]
χ^2-ARCH(2)	0.7715[0.6799]
χ^2-ARCH(3)	3.0916[0.3777]
Ramsey (1,22)	0.1549[0.6977]
Ramsey (2,21)	0.2905[0.7509]

Source: Author's computation using Eviews

* (**) (***) denotes significance at 10%, 5% and 1% respectively

We proceed to test for the presence of long-run relationship among the variables so as to avoid spuriosity. The table 3 below shows the ARDL bound test result. The calculated F-statistics is far greater than the critical values and we may conclude that the long run relation between the variables is empirically valid.

Table 3. ARDL F-bound test result

Null Hypothesis: No levels relations relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-stat	15.32	10%	2.845	3.623
d.o.f (k)	2	5%	3.478	4.335
Sample Size Used	32	1%	4.948	6.028

Source: Author's computation using Eviews

In table 4 below, we show the estimated long-run parameters. The result shows that the accumulated (long run) effect of broad money supply on real GDP is positive while the accumulated (long run) effect of government expenditure on real GDP is negative. The two long-run effects are both significant statistically. Also, one percent increases in government expenditure lead to 0.32% decrease in the real GDP while one percent increases in broad money supply lead to 0.51% increase in the real GDP in the long run respectively.

Table 4. ARDL (2, 3, 0) estimated long run parameters
Dependent variable: gdp
Adjusted sample: 1984-2015 (33 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Gov	-0.320942	0.076702	-4.184299	0.0004***
Ms	0.507004	0.067757	7.482733	0.0000***
Constant	8.964512	0.087820	102.0777	0.0000***

Source: Author's computation using Eviews

* (**) (***) denotes significance at 10%, 5% and 1% respectively

The table 5 below shows the estimated short run parameters. The result shows that the instantaneous effect and the two previous period's consecutive effects of government expenditure on real GDP are negative in the short-run. Since zero lag is selected for the broad money supply by the information criterion, it will automatically disappear in the error correction equation through algebraic transformation; however, its short run (instantaneous) effect on real GDP is equivalent to the estimated coefficient (0.12) of the log money supply in table 2 above. In essence, we could see that this value is positive and significant.

Table 5. ARDL (2, 3, 0) estimated short run parameters
Dependent variable: d(gdp)
Adjusted sample: 1985-2015 (32 observations)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
d(gdp(-1))	0.393237	0.082000	4.795560	0.0001***
d(gov)	-0.041360	0.018601	-2.223514	0.0363**
d(gov(-1))	-0.006200	0.015180	-0.408459	0.6867
d(gov(-2))	-0.054669	0.016641	-3.285279	0.0032***
dummy(1990)	0.109333	0.022235	4.917118	0.0001***
Ecm(-1)	-0.243483	0.029247	-8.325172	0.0000***

Source: Author's computation using Eviews

* (**) (***) denotes significance at 10%, 5% and 1% respectively

Interestingly, one could quickly convince or be convinced that fiscal policy impacted negatively on real GDP both in the short run and long run based on the results above while money supply impacted positively on real GDP in the short run as well as in the long run.

Logically, the long run impacts in the table 4 above are interpreted as the cumulative effect of the temporary (short run) fiscal and monetary policies shocks on the economy. The implication of this statement is that long run state cannot be achieved immediately but through the momentum of processes. This implies that there are fiscal and monetary policies dynamics (which only the parameter estimates cannot reveal) that drive the economy towards the steady state (long run). In order to delve further into these embedded dynamics, we used the coefficients of the estimated ARDL (2, 3, 0) model in table 2 above to derived the impulse response function as shown in figure 2 below.

Graphs labeled A and B show the dynamic responses of GDP to fiscal and monetary policies shocks while graphs labeled C and D show the cumulative (long run) responses of GDP to fiscal and monetary policies shocks.
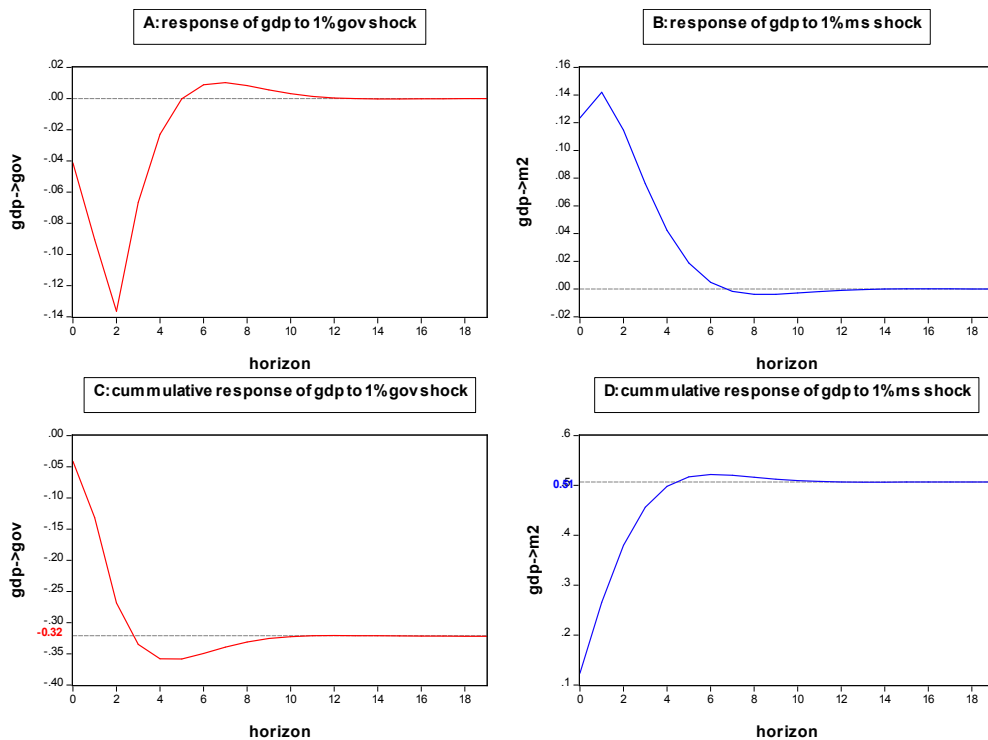
Figure2. ARDL (2, 3, 0) impulse response function

Sources: Authors computation from the estimated ARDL model

From graph A, we can see that GDP respond negatively to fiscal policy shock between the initial horizon up to the fifth horizon when its response switch to positive and the effect dies off at the longer horizons. The graph helps us to investigate properly that the effect of fiscal policy on GDP is not wholly negative in the short run as seen in the error correction model result (see table 5 above). Also on graph labeled A, we can see that the negative effect of fiscal policy on GDP outweighs the positive effect hence the cumulative (long run) effect will be negative; this proposition is supported by the graph labeled C. Also, from figure B, we can see that GDP respond positively to monetary policy shock between the initial horizon till the sixth horizon when its response switch to negative and the effect dies off in the longer horizons. Figure B as well help us to shed more light on the view that the effect of monetary policy on GDP is not wholly positive (the value of 0.12 as stated above) in the short run. On graph labeled B, we can see that the positive effect of monetary policy on GDP outweighs the negative effect hence the cumulative (long run) effect will be positive; this is supported by the graph labeled D. The two graphs labeled C and D show the cumulative (long run)

response of GDP to fiscal and monetary policies shocks. The horizontal lines on graphs C and D correspond to the long run values as shown in table 4 above.

5. Conclusion

This study shows that short run parameter estimates of a single equation dynamic model may be too weak to unveil the true and necessary dynamics, and this would bring misperception of policy tools by the policymakers which would surely lead to wrong policy formulation. This study also finds out that GDP responded positively and negatively to fiscal policy shock but the accumulated (long run) effect is negative. Likewise, GDP responded positively and negatively to monetary policy shock but the accumulated (long run) effect is positive. From our meticulous findings after the herculean task, we conclude that the monetary policy effect is much stronger than the fiscal policy effect on the Nigerian economy. However, it would sound pessimistic if we proffer that monetary policy rather than fiscal policy should be relied upon by the Nigerian government as an economic stabilization tool because they ought to be used simultaneously. In fact, monetary and fiscal policies are *sine qua non* for the sustainability of Nigerian economy. Ultimately, we suggest based on our empirical findings that the government and the policymakers should try to simultaneously make fiscal and monetary policies formulation in such a way that their temporal and cumulative effects on the economy for growth and sustainability motive would be positive.

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Relating Women in Parliament and Economic Growth in an Emerging Economy – South Africa

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Abstract: As developing nations grapple with the economic challenges of the 21st century, the aptness of new approaches to boost economic growth is more than ever desired. To this end, this paper examined the relationship between the proportion of seats of women in national parliament and economic growth in South Africa; accordingly, the paper is anchored on women and development theory. The research applied a quantitative approach and secondary data on proportion of female seats in South Africa's national parliament and the GDP growth for South Africa were retrieved from the World Bank development indicators for 1998 – 2017 (20 years); in addition, foreign direct investment (FDI) was used as a control variable. The OLS regression statistics was applied to analyse the relationship at an alpha value of 0.05. Findings from the results showed that whilst the FDI disclosed no significant relationship with economic growth, the proportion of female seats in national parliament indicated a significant positive relationship with the GDP growth for South Africa during the 20 years of study at a P-value of 0.0001. The paper contributes to the literature by examining this phenomenon within the South African context. From the result, the paper makes policy and research recommendations, which includes inter alia, the need to balance the parliamentary seats equitably for females and to increase female political seats in provincial legislators and in municipal managerial seats as this has the propensity to increase economic growth the more. Further research is apposite to examine this relationship at the provincial levels and across countries in Africa in a cross-sectional panel approach.

Keywords: emerging economy; economic growth; women in parliament; sustainable development

JEL Classification: O1; O2; O10; O11; J16

1. Introduction

Since the 18th century industrial revolution, economic growth and development has been at the forefront of state policy all over the world. This is important as economic growth and development ensures not only increased output of productivity but also enhances effective improvement in social welfare and equity (Midgley, 1999). The emergence of the 21st century has witnessed an amalgam of economic growth models meant to boost economic development mostly for

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developing markets Esterly and Levine (2001), the search for new efficient and effective models is still ongoing. The advent of globalization, increase in knowledge and the gradual flaking of discrimination against female gender – all combined together is ushering new insight on the economic growth influence that is hidden in women's leadership ingenuity (Boserup & Toulmin, 2013). The involvement of women in searching for economic growth has become more pronounced in contemporary era where growth is not only confined to financial growth, but includes a sustainable growth pattern.

This paper is important as it offers a first assessment of the role of women in parliament in South Africa's economic growth – reason being that the South Africa's national development plan targets the involvement of women in national economic leadership. It is a well-known fact that women in South Africa played an outstanding role in dismantling oppressive apartheid regime and the installation of democracy in the country. Since the democratic dispensation, the women of South Africa has gain increasing recognition and seats in the national parliament, this is in alignment with sustainable economic development goal 5 of the United Nations. However, there is a dearth of empirical study on how women's participation in South Africa's parliament relates with economic growth of the nation.

Although there are various models of economic development, the goal five of United Nation's Sustainable Development Goals (SDG) 2015 – 2030 has become a paramount model of development given that it hinges on gender equity, a vital model for achieving sustainable economic development. Goal 5 of the SDG recommends that governments should ensure that women participates fully, effectively and equally in leadership positions requiring decision-making, be it in the political, economic or public spheres (UN, 2015) as this will ensure sustainable economic development. Being a member of parliament is a vital aspect of political participation and is one key avenue of contributing to national and economic decision making, which in turn affect economic performance of the nation, accordingly women's involving in parliament accords them the opportunity to contribute in economic development decisions. Involving women is in consonance with women and development theories which suggests that factors which affect economic are not only external but also internal (Stolt, 2013).

There is a scanty prior research done in this unique theme, the few research done includes a cross country analysis of effect of gender in national parliament on economic growth (Stolt, 2013). Economic performance effect of women legislators in India (Baskaran, Bhalotra, Min & Uppal, 2018). Political participation of women and economic growth in Asia (Xu, 2015). These research, which focused on different geographical areas offer varied findings. This paper contributes to the few research in this field by bringing in an emerging country's perspective from Africa

and in doing so uses the result to add additional insightful information for economic development policy in South Africa and other emerging markets.

The question that underpins this paper is whether involvement of women in South Africa's parliament has had a relationship with the country's economic development; therefore, the core objective of this paper is to analyse empirically the relationship between growth of women in South Africa's parliament and South Africa's economic development.

The remainder of this paper is organised in the following order. The next section after this introduction provides a brief theoretical background using the women and development theory. Following the theoretical discussion, the next section reviews related literature. The methodology is presented after the literature review and this is followed by results and discussions; the paper ends with a conclusion.

2. Theoretical Framework and Literature Review

2.1. Theoretical Framework

The theoretical foundation of this paper is rooted in 'women and development' theory – it is important given that neo-development alternatives have realized that women in development should not only be about welfares for women, but most importantly how to involve women as co-agents of development – hence contemporary development approaches that exclude women as leaders and planners in development process is incomplete and may not actualize effective development expectations. This is important given that from empirical research such as in Africa's rural agriculture, women were found to handle about 80% of rural agricultural processes more than men (Martin, 1992). This being the case, it has become pertinent, more than ever, that women should be involved in planning for economic development – hence this paper rests strongly on 'women in development' (WAD) theory, which is briefly discussed below.

2.1.2. Women and Development (WAD) theory

The very first approach about women and development largely saw women's in development as that of welfare economics – where women's role in Africa were largely regarded as being that of beneficiaries of economic development projects (Moser, 1995). However, this had an implicit connotation of undermining the hard work, ingenuity and most importantly, equitable right of women in society. Hence, a more inclusive development approach was thought to be the type where women are both team-players and beneficiaries in economic development (Joekes, 1990). This view is at the core of women and development (WAD) theory – which does not believe that women should be treated as mere recipients of economic development process, but that women should be given the chance to be agents in

economic development processes; this according to Moser (1985) hinges on the fact that women occupy important facet in development. For instance, women will be in a better position to plan and executive economic development processes that touches on social issues, children and women's issues. A liberal paradigm in economic development gained impetus from 1963-1975 after the United Nations General Assembly commissioned a body on the status of women to articulate the vital role of women in development, which amongst others dealt with the participation of women in development; this was quickly given a momentum by Boserup publication about women's role in development (Womenwatch, 2006; Boserup, 2011; Benería et al, 2015). With the joining of many new independent states to the United Nations, the early 1960s and 1970s witnessed unprecedented increased awareness of the world about the discrimination against women, hence the rise in many movements to end discrimination against women. One of these many movements was the creation of United Nations "*Commission on the Status of Women*" and the subsequent *"recognition of women's role in development"* (Boutros-Gahli, 1995, p. 4). This elevated the role of women in development (not as mere recipients, but as agents of development). Thus the WAD shifts away from the primordial notion that development is meant to benefit women to a neo liberal idea that development is facilitated through the involvement of women and instead of being only receivers from development women should also be allowed to participate as agents in development ventures.

Accordingly, the WAD theory garnered full momentum after the 1975 First World Conference on Women in Mexico, it sought to improve the limitations inherent in modernization theory, which in certain instances had negative consequences for women in the third world; researchers also noted that under modernization perspective of development, women's access to modern productive resources and leadership was neglected and market forces are not been gender-neutral, hence prejudice against women persisted under the mordernisation theory as new resources for development under the modern economy were male-dominant, and women left at the brim of development despite their notable contribution to subsistence economy and the gross national product (GNP) (UNWomen, 2016; Sarker, 2006; Rathgeber, 1990). Therefore, the main trust of Gender and Development theory is that women should not be standing aloof and be seen as satisfied by being mere recipients of economic development aids, rather women should become active agents of development projects. WAD theory further advocates, where possible, to have a genre of development projects that are led by women only, this way, the patriarchal hegemonic tendencies, where women had been subjugated under the old system of economic development – mostly in Africa and other third world, world be less dominated by men. The WAD creates awareness about the outstanding performance of women as economic agents and how women play important development roles in society and advocates for some

women-only development initiatives to avoid patriarchal dominance. Although the goal of WAD theory of development has not been fully actualized, but the push can be seen to be materialising on the bourgeoning number of women around the world that are constantly occupying parliamentary positions in national assemblies to contribute as agents in national and international economic development decisions. Given this blossom positions of women as agents of developmental decisions, many empirical research has thus emerged to examine whether this gradual rise in positioning of women in parliaments is yielding any economic development gains for the nations. This paper contributes to this debate by examining the South African context. The following section of the paper, reviews some preivous literature before engaging in empirical analysis using the South African data.

2.2. Review of Related Literature

The 21st century has seen an unprecedented trend of many women ascending to political positions such as parliamentary seats in many countries of the world, and this has come with attendant impact on composition of national spending (Baskaran, Bhalotra, Min & Uppal, 2018). With this trend, few contemporary research literatures have started to seek an understanding of how women in political seats is linked to economic growth of countries that have encouraged the position of women in such political seats. This inquisition is important given that the current trend allows women to be agents of development, hence the impact should resonate on the trend of economic development. To this end, Baskaran et al (2018) analysed the effect of women legislators on the economic performance of provincial constituencies that elected women as their legislators. Using a discontinuity regression approach, Baskaran et al (2018) found a positive relationship between women legislators and economic growth of the constituencies with women legislators; they found that the economy grew by about 1.8 percent better than in constituencies with male legislators. Whilst probing the results further, they found that women legislators in India are less likely to engage in political corruption and/or political opportunism, and are more efficient that their male counterparts. The current paper will improve on Baskaran et al (2018) research because, it will use a national GDP data for South Africa and not data from constituencies. Furthermore, whilst the research of Baskaran et al (2018) used a proxy for economic growth, this current research will use the actual GDP data, which is a conventional variable used in the measure of economic growth. further results from Baskaran et al (2018) study show that male legislators have a three times likelihood of having criminal charges against them than women, that female legislators are ten times less likely to accumulate assets whilst in office than their male legislators, they also find that female legislators are more likely to oversee the final successful completion of rural road projects than their male counterparts.

Another research by DiRienzo (2018) sought to explore the impact of women in government on corruption level and general peace of the country. The research applied a cross-country data, which were tested using a mediation analysis. Findings from the research analysis indicated that increased number of women in government brings about general peace through improved provision of resources and through reduction in corruption. The positive role of women in government with corruption reduction in DiRienzo (2018) findings corroborates the findings of Baskaran et al (2018) from the Indian study, which found that women parliamentarians have low propensity to engage in corruption. In a related study, a group of researchers namely Debski, Jetter, Mösle and Stadelmann (2018) evaluated the relationship between gender and corruption in government; they studied about 177 countries and using fixed effect regression, they controlled for heterogeneity and produced a different results showing that female inclusion in politics would not necessarily lead to a significant reduction in corruption unless variables such power distance and masculinity are included in the analysis of women in politics and reduction in corruption. However, in their research analysis about gender in parliament and corruption, Jha and Sarangi (2018) found that increased participation of women in national parliament leads to a negative relationship with corruption – which suggests that increase in women's seats in parliaments would lead to a reduction in corruption (other things being equal).

Women's relationship with corruption studies was considered important since corruption affects economic growth (Mo, 2001). Therefore, examination of female participation in parliament and reduction in national corruption continues to gain gradual interest because of previous findings that corruption hinders economic development; for instance, in his research Mo (2001), found that a one percent increase in the level of country corruption might lead to 0.72% decrease in economic growth level, the research also found that corruption increases political instability and grossly brings about a reduction in human capital development. Esarey and Schwindt-Bayer (2017) analysed the causative relationship between women parliamentary representations and corruption; applying instrumental variables, their research found that increased representation of women in parliament would significantly reduce corruption level, and that increase in corruption level would reduce the number of women elected in national parliament. It is thus not surprising whilst some research have found that women in parliament enhances economic growth (Xu, 2015).

In a continuous search to find a relationship between women in national parliament and economic growth, Stolt (2013) applied a cross-country regression design to study this relationship across countries. Stolt divided the countries into two major groups, namely low and high income countries; however, results from the regression analysis provided no evidence that increased proportion of women in national parliament might lead to increased economic grow. Furthermore, the Stolt

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(2013) result showed that a more inclusive female participation in the economy would increase the general level of productivity in the economy. This increase in general productivity may perhaps draw from previous findings that women have less tendency to involve in public sector corruption than men as women are more risk averse and are more altruistic for the public interest than men (Xu, 2015).

In another related study, Xu (2015) studied how women in national politics affects the economic growth of thirty (30) countries in Asia. With GDP and women in politics data from the World Bank, Xu (2015) used the panel data regression model for data analysis. Results from the regression analysis disclosed two important findings, small percentage of female representation in national government would yield insignificant effect on economic growth but increased proportion of female representation in national government would result to a significant effect on economic growth. This shows that it is not just about female representation that matters, but the proportion of representation should be meaningful to influence economic growth. From the foregoing, it can be seen that despite few research done in this important area of economic development, the few research has no uniform consensus in their findings. Therefore, this research contributes to the ongoing literature by looking at the South African context to see if the acclaimed growth in South Africa's female seats in parliament relates with economic growth of South Africa. If this is so, it becomes important for policy makers to improve their economic growth model in Africa by ensuring equitable representation of women in national parliaments.

3. Methodology

This research analysis applied a quantitative approach and data for this study was collected through a secondary data collection approach from the World Bank economic indicators data bank of world female parliamentarians for South Africa and from World Bank data bank on gross domestic product (GDP) and Foreign Direct Investment (FDI) for South Africa. The variables have already been measured numerically by the World Bank, hence the researcher only retrieved the numerical variables. Accordingly, time series data were collected for twenty (20) years (1998 – 2017) on the variables from the World Bank economic indicators archive. The statistical analysis was by means of Ordinary Least Square (OLS) multiple regression analysis; the analysis was conducting by using the Gretl statistical and econometric software.

OLS Multiple Regression Model:

Regression Model: $\gamma = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \varepsilon$

Where: γ = GDP; β_0 = regression intercept; β_1 = regression coefficient; χ_1 = main independent variable (proportion of women's seat in parliament [WOIP]); χ_2 = foreign direct investment (FDI) second independent variable (control variable); ε = error (representing other unaccounted independent variables). The choice of including FDI as a control variable draws from similar usage of FDI as a control variable in similar research by Stolt (2013), who studied gender equality in national assemblies and economic growth across countries. This study area differs from others since it concentrates on the only emerging economy in Africa, which is South Africa.

Measurement of Variables: both the dependent (GDP) and independent variables (WOIP and FDI) were already measured in numerical terms and were collected as reported in the World Bank archive of World Economic Indicators, World Bank (2018). The GDP used is the GDP per capita in US Dollars based on the purchasing power parity (PPP), this was deemed more suitable since the national GDP without the PPP may not tell how much an individual has as his/his purchasing power. The woman in parliament variable is the proportion of seats or percentage of seat held by women in South African national parliament compared to men. The FDI refers to the net inflows of foreign direct invest in US Dollars in South Africa. Women's participation in the economy is part of South Africa's national development plan, which has gained impetus since the advent of democracy in 1994. Figure 1 presents the growth in the proportion of seats held by women in national parliament and Figure 2 is the GDP growth for South Africa.
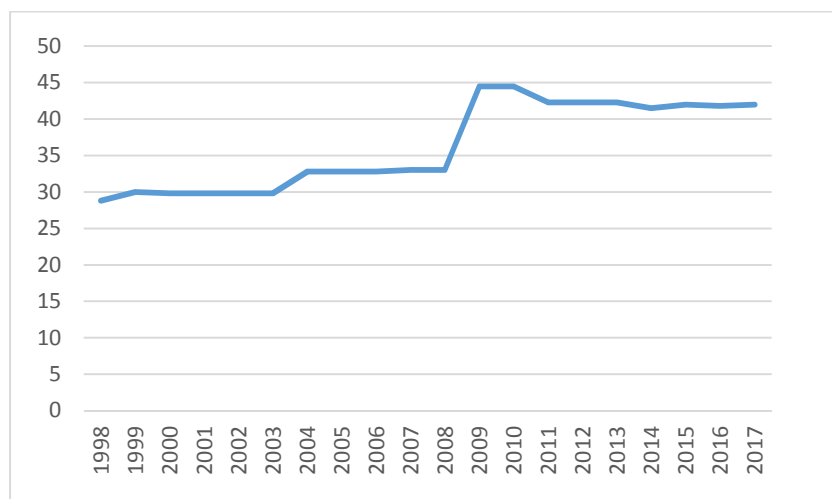

Figure 1. Growth in Proportion of Women in Parliament 1998 – 2017 South Africa
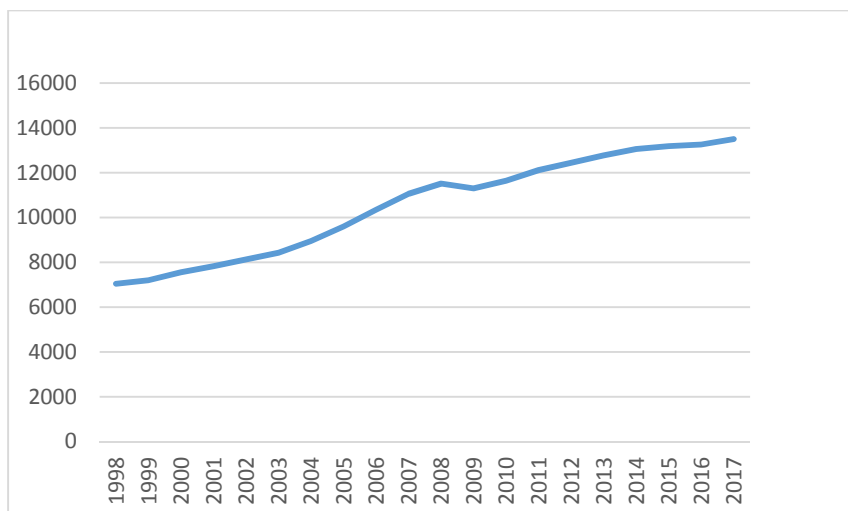
Figure 2. GDP Growth South Africa: 1998 - 2017

3.1. Results and Discussion

Table 1. OLS Multiple Regression Results of Link Between WOIP, FDI and GDP

Model 1: OLS, using observations 1998-2017 (T = 20) Dependent variable: GDP_SA					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-1382.34	1541.02	-0.8970	0.38223	
WOIP_SA	320.696	43.3974	7.3898	<0.00001	***
FDI	7.70213e-08	8.60796e-08	0.8948	0.38341	
Mean dependent var		10545.53	S.D. dependent var		2257.598
Sum squared resid		20504427	S.E. of regression		1098.245
R-squared		0.788261	Adjusted R-squared		0.763350
F(2, 17)		31.64375	P-value(F)		1.86e-06
Log-likelihood		-166.7830	Akaike criterion		339.5659
Schwarz criterion		342.5531	Hannan-Quinn		340.1491
rho		0.516016	Durbin-Watson		0.934760

Table 2. Validity Test

Test for normality of residual - Null hypothesis: error is normally distributed Test statistic: Chi-square(2) = 0.342836 with p-value = 0.842469 Frequency distribution for uhat1, obs 1-20

```
number of bins = 7, mean = -3.18323e-013, sd = 1098.25
   interval      midpt  frequency  rel.   cum.
        < -1863.2  -2174.0    1    5.00%   5.00% *
  -1863.2 - -1241.5  -1552.4   1    5.00%  10.00% *
  -1241.5 - -619.81  -930.66   4   20.00%  30.00% *******
  -619.81 -  1.8883  -308.96   6   30.00%  60.00% **********
   1.8883 -  623.58   312.74   1    5.00%  65.00% *
   623.58 -  1245.3   934.43   4   20.00%  85.00% *******
        >= 1245.3   1556.1    3   15.00% 100.00% *****
Test for null hypothesis of normal distribution:
        Chi-square(2) = 0.343 with p-value 0.84247
```

Table 3. Test for heteroskedasticity

White's test for heteroskedasticity -
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 7.78579
  with p-value = P(Chi-square(5) > 7.78579) = 0.168443
White's test for heteroskedasticity
OLS, using observations 1998-2017 (T = 20)
Dependent variable: uhat^2

	coefficient	std. error	t-ratio	p-value	
const	3.64321e+07	2.13889e+07	1.703	0.1106	
WOIP_SA	-2.09385e+06	1.22110e+06	-1.715	0.1084	
FDI	-7.01813e-05	0.000684359	-0.1026	0.9198	
sq_WOIP_SA	30402.3	17084.7	1.780	0.0969	*
X2_X3	-1.32733e-05	1.79415e-05	-0.7398	0.4716	
sq_FDI	0.000000	0.000000	1.721	0.1073	

Warning: data matrix close to singularity!
Unadjusted R-squared = 0.389289
Test statistic: TR^2 = 7.785788,
with p-value = P(Chi-square(5) > 7.785788) = 0.168443

Table 4. Collinearity Test

Collinearity Test
Variance Inflation Factors
Minimum possible value = 1.0
Values > 10.0 may indicate a collinearity problem
     WOIP_SA   1.075
        FDI   1.075
VIF(j) = 1/(1 - R(j)^2), where R(j) is the multiple correlation coefficient
between variable j and the other independent variables
Properties of matrix X'
 1-norm = 4.6440818e+020
 Determinant = 2.2405274e+024
 Reciprocal condition number = 1.0647032e-021

Table 5. Autocorrelation

```
Test for autocorrelation
LM test for autocorrelation up to order 2 -
  Null hypothesis: no autocorrelation
  Test statistic: LMF = 3.31229
  with p-value = P(F(2,15) > 3.31229) = 0.0643542
Breusch-Godfrey test for autocorrelation up to order 2
OLS, using observations 1998-2017 (T = 20)
Dependent variable: uhat
          coefficient    std. error    t-ratio    p-value
  -------------------------------------------------------------
  const    80.2843       1419.04         0.05658   0.9556
  WOIP_SA  2.78102        39.5293        0.07035   0.9448
  FDI     -4.42280e-08     7.85594e-08  -0.5630    0.5818
  uhat_1   0.663691        0.258340      2.569     0.0214  **
  uhat_2  -0.257386        0.268860     -0.9573    0.3536
  Unadjusted R-squared = 0.306345
Test statistic: LMF = 3.312291,
with p-value = P(F(2,15) > 3.31229) = 0.0644
Ljung-Box Q' = 5.2056,
with p-value = P(Chi-square (2) > 5.2056) = 0.0741
```

3.2. Discussion

Before the statistical results, Figure 1 and Figure 2 is presented to show the trend of women parliamentarians in South Africa and how the trend compares pictorially with the trend of GDP growth in South Africa. It can be seen that female parliamentarians in South Africa has maintained an upward trajectory since 1998 (Figure 1), this trend has a semblance with the economic growth (GDP) trend in Figure 2. The pictorial alignment of growth of women's seats in South Africa's parliament appear to have a corresponding upward trend with the GDP growth of South Africa. This graphical appearance tends to align with the South Africa's national economic development plan of including women in national economy – with the hope that women's inclusion would enhance a more equitable sustainable economic development.

The data collected was further subjected to empirical analysis using the Ordinary Least Square (OLS) multiple regression approach. The data covering a span of 20 years (1998 – 2017) was loaded unto the Gretl statistical and econometric package. The regression output appears in Table 1. The main independent variable (proportion of women's seat in parliament) was controlled by including foreign direct investment (FDI), which was also used in related previous research as a control variable. The significance of the analysis was examined at an alpha of 0.05; the overall regression fit was significant with a P-value of less than 0.001. looking at the individual independent variables (WOIP and FDI), the p-value of the control

variable FDI is 0.38, which is higher than the alpha level 0.05, which indicates lack of significant relationship with the GDP.

Regarding the main independent variable, which is the crux of the study, the resulting P-value in Table 1 indicating the influence of women's seat in parliament on GDP gives a P-value of 0.00001 with a positive regression coefficient of 320.696. This result indicates that within the twenty years of study, number of women's seat in the parliament of South Africa tend to influence economic growth significantly and positively. The validity of the regression analysis was conducted in Table 2 to Table 5. These analysis show that data used were normally distributed, there is lack of heteroscedasticity, there is no autocorrelation and there is no collinearity. Hence the data used and the results are valid and can be replicated by future researchers.

Although previous research on this theme have had diverse findings albeit no uniform consensus thus far, but this finding agrees with the research result of Baskaran et al (2018) who found that increase in women legislators in India has a significant relationship with economic performance in India (an emerging economy). Furthermore, the findings of this paper corroborates the empirical findings of Xu (2015) that political participation of women does foster economic growth in selected Asian countries. However, a cross-country empirical study discovered no relationship between the number of seats held by women in parliament and economic growth (Stolt, 2013). The limitation of this research includes the short time series data, which was limited to twenty years, and the concentration of women's seat in national parliament; women in provincial legislators were not considered.

4. Conclusion

This paper aimed to evaluate how the proportion of female seats in national parliament relates with economic growth. Prior findings lacked a uniform consensus; hence this paper adds a nuance from the South African perspective. This paper and the findings is thought to be timely important given that it synchronizes with the requirement of the goal five of United Nation's Sustainable Development Goals (SDG) 2015 – 2030, which requires governments to ensure the equal involvement of women in national leadership positions at political, economic and public sector spheres. The paper also looks internally to find growth solution, which suggests empirically that women's seat in parliament being an endogenous growth factor is an important economic growth approach that requiring attention. This research applied a quantitative approach and collected secondary archival data from the World Bank development indicators for twenty years. The OLS regression analysis indicates that increase in the proportion of female seats in South African

parliament has a positive and significant relationship with economic growth of the country. This finding thus serves as an insight for economic policy makers that strive towards gender equality in national, provincial and municipal governments as a veritable approach for improving economic growth of the country.

This current paper has contributed to earlier literature by empirically analyzing this relationship in an emerging country from Africa (South Africa) and by showing that it corroborates the finding from another emerging market in India, Baskaran (2018), which concluded that increase in women's seats in parliament has a strong propensity to influence economic growth in an emerging market (other factors being equal). This finding should serve as a policy reference point for economic development policy in South Africa and other African countries to encourage more women's seat in parliament.

In providing policy recommendation the paper recalls that from the literature, women have less tendency to involve in public sector corruption than men as women are more risk averse and are more altruistic for the public interest than men (Xu, 2015), furthermore the literature indicates that women are more likely to oversee the completion of public roads than their male counterparts (Baskaran, 2018). Furthermore, the empirical findings from this paper show that increase in the number of female seats in South African parliament (1998 – 2017) has significant tendency to influence a positive economic growth in South Africa. Therefore, the paper recommends that economic development policy makers should craft policies that would ensure more equal representation of women in the national parliament. Similarly, such equal representation of women's seat should be applicable to provincial legislators, provincial premier positions and municipal managers. In addition to the above policy recommendation, the paper also recommends that future researchers should expand this research by studying the effect of women's seats in provincial legislators on provincial economic growth of South Africa, such research should also expand the time series of study and to include other Southern African countries in the analysis to see how the relationship plays out across the Southern African countries.

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